



UPSTREAM PATRICK BAYOU CHARACTERIZATION DATA REPORT

PATRICK BAYOU SUPERFUND SITE
DEER PARK, TEXAS

Prepared for

Patrick Bayou Joint Defense Group

Prepared by

Anchor QEA, LLC

614 Magnolia Avenue

Ocean Springs, Mississippi 39564

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LIST OF ACRONYMS AND ABBREVIATIONS

µg/kg	micrograms per kilogram
Alpha	Alpha Analytical
AOC	Administrative Order on Consent
C	Celsius
cm	centimeter
COC	chain-of-custody
COPC	contaminant of potential concern
Data Report	Upstream Patrick Bayou Characterization Data Report
EMPC	Estimated Maximum Potential Concentration
HSC	Houston Ship Channel
JDG	Joint Defense Group
LDC	Laboratory Data Consultants
LELAP	Louisiana Environmental Laboratory Accreditation Program
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MS	matrix spike
MSD	matrix spike duplicate
NELAP	National Environmental Laboratory Accreditation Program
ng/kg	nanograms per kilogram
ng/L	nanograms per liter
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
ppm	parts per million
PQL	practical quantitation limit
QAPP	Quality Assurance Project Plan (Anchor 2007b)
RI/FS	Remedial Investigation/Feasibility Study
SAP	Final Upstream Patrick Bayou Characterization Sampling and Analysis Plan (Anchor QEA 2011)
SGS	SGS North America
SH	State Highway
Site	Patrick Bayou Superfund Site

TEF	toxic equivalency factor
TEQ	toxic equivalent
TOC	total organic carbon
TSS	total suspended solids
USEPA	U.S. Environmental Protection Agency
Work Package 2 Data Report	Work Package 2 Hydrodynamic Field Data Collection and Contaminant Source Evaluation Data Report (Anchor 2007a)

EXECUTIVE SUMMARY

This Upstream Patrick Bayou Characterization Data Report (Data Report) summarizes the results of sediment and surface water chemistry investigations conducted during the implementation of the Final Upstream Patrick Bayou Characterization Sampling and Analysis Plan (SAP; Anchor QEA 2011) at the Patrick Bayou Superfund Site (Site) in Deer Park, Texas. These investigations provide additional information on the distribution of polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) in sediment and surface water within the upstream portion of the Site. This upstream area exhibits a higher hydraulic gradient compared to other areas of the Site, and in large part is characterized by a harder substrate with a large proportion of coarse sand, gravel, and cobble size materials. Previous sampling results show that these substrates generally have lower concentrations of PCBs than areas with softer substrates in the lower portions of the Site.

As specified in the SAP, the investigation focused on three main areas:

1. Identifying areas in the upstream portion of the Site, between Stations PB066 and PB101, which have accumulated areas of soft sediments¹.
 - Where soft sediment was present and where acceptable samples were identified, sediment samples were collected for on-site analysis and those results were used to select samples for off-site analysis per U.S. Environmental Protection Agency (USEPA)-approved methods.
2. Investigating the culverts beneath State Highway (SH) 225 for the sediment condition and vertical composition of sediment.
3. Sampling and analyzing surface water samples between Stations PB066 and PB101 to complete the surface water dataset.

The investigation included the following:

1. In the upstream portions of the Site, between Stations PB066 and PB101, 114 locations were probed to identify accumulations of soft sediment.

¹ Station identifiers are named so that the last three numbers in the identifier reflect the station's distance from the mouth of Patrick Bayou in hundreds of feet.

2. Fifteen sediment samples were collected and analyzed using on-site field assay test kits. Six of those samples were selected for off-site analytical testing per USEPA-approved methods. One duplicate sample was collected at random from among the samples selected for analysis.
3. In the five culverts investigated, eight sediment samples (seven normal samples plus one duplicate) were collected for grain size, total organic carbon (TOC), specific gravity, metals, PAHs, PCBs, and dioxin/furans.
4. Five surface water samples (four normal samples plus one duplicate) were collected between Stations PB066 and PB101 and analyzed for TOC, total suspended solids (TSS) and PCB congeners.

Key results for channel sediments between PB066 and PB101 showed:

- Concentrations of total PCB Aroclor ranged from 2,450 micrograms per kilogram ($\mu\text{g/kg}$) at Station PB070A to 112,000 $\mu\text{g/kg}$ at Station PB081.1.
- Concentrations of total PAHs, including the alkylated homologs, ranged from 15,900 $\mu\text{g/kg}$ at Station PB070A to 642,000 $\mu\text{g/kg}$ (801,000 $\mu\text{g/kg}$ in the duplicate) at Station PB081.1.

Key results for sediments from the culverts under Highway 225 showed:

- Concentrations of total PAHs (including alkylated PAHs) from the surface sediment samples ranged between 8,980 $\mu\text{g/kg}$ and 64,200 $\mu\text{g/kg}$.
- Concentrations of total PCB congeners in surface sediments ranged between 8.38 $\mu\text{g/kg}$ and 17.4 $\mu\text{g/kg}$.
- Concentrations of total dioxin/furan congeners in surface sediments ranged between 412 nanograms per kilogram (ng/kg) and 1,070 ng/kg .

Key results for surface water showed:

- The highest concentration of total PCB congeners was found at Station PB080 (143 nanograms per liter [ng/L]). The farthest upstream station, Station PB101C, had the lowest total PCB congener concentration (5.65 ng/L).

The data collected during this investigation will help to establish the extent of PCBs and PAHs in the upstream portion of Patrick Bayou and provide additional information to evaluate surface water PCB concentrations in the upstream portion of Patrick Bayou for the Remedial Investigation Report.

1 INTRODUCTION AND PURPOSE

The work performed during the implementation of the Final Upstream Patrick Bayou Characterization Sampling and Analysis Plan (SAP; Anchor QEA 2011) was carried out as part of the Remedial Investigation/Feasibility Study (RI/FS) being conducted by the Patrick Bayou Joint Defense Group (JDG) in response to an Administrative Order on Consent (AOC) and Settlement Agreement with the U.S. Environmental Protection Agency (USEPA), dated January 31, 2006. This Upstream Patrick Bayou Characterization Data Report (Data Report) summarizes the results of sediment and surface water chemistry investigations conducted during the implementation of the SAP.

Review of the results of the previous sediment and water column sampling performed in 2009 at the Patrick Bayou Superfund Site (Site) identified polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) in sediments and PCBs in surface water in the upstream reaches of Patrick Bayou (Anchor QEA 2010). The investigation described in this Data Report provided additional information to better understand the distribution of PCBs and PAHs in those respective media within the upstream portion of the Site. Additional information regarding grain size and substrate characteristics was collected to support potential remedial alternatives, if necessary.

1.1 Site Description

Patrick Bayou is a tributary of the Houston Ship Channel (HSC) in Harris County, Texas (Figure 1). It discharges into the south side of the HSC, approximately 2.3 miles upstream of its confluence with the San Jacinto River. The Site and its physical features are described in more detail in the Preliminary Site Characterization Report (Anchor 2006), and the Work Package 2 Hydrodynamic Field Data Collection and Contaminant Source Evaluation Data Report (Work Package 2 Data Report; Anchor 2007a).

The Site is segmented by stations from the mouth of Patrick Bayou at its confluence with the HSC (Station PB000) up to the upstream Site boundary at the culverts under State Highway (SH) 225 (Station PB102). These stations provide the approximate linear distance from downstream to upstream in hundreds of feet (for example, Station PB102 is approximately 10,200 linear feet from the mouth of Patrick Bayou). This investigation

focused on the area of Patrick Bayou from immediately south of SH 225 downstream to the approximate confluence of the East Fork tributary with Patrick Bayou (PB066; Figure 2).

The drainages upstream of the Site originate in the city of Deer Park, Texas, and consist of trapezoidal, concrete-lined ditches that transition into large culverts underneath SH 225. These culverts emerge into a gunite-lined channel at the upstream Site boundary (Station PB102). The gunite lining protects the side slopes of the channel in this area; however, the bottom of the channel is comprised of earthen materials and scattered riprap. The gunite-lined portion of the channel extends from Station PB102 to approximately Station PB080. The channel then transitions to a more natural channel bottom downstream, bordered by natural and armored banks, which make up the remainder of the Site.

Previous evaluations at the Site relevant to this Data Report focused on:

- Determining the vertical distribution of potential contaminants.
- Collecting hydrologic and hydrodynamic information.
- Developing a better understanding of sediment physical characteristics.
- Developing integrated Site watershed, hydrodynamic, and sediment transport model.
- Defining the Site list of contaminant of potential concern (COPCs).
- Determining the depth of the sediment mixing zone at the Site.
- Determining the distribution of COPCs in surface sediments and surface water.

1.2 Sampling Objectives

Previous investigations in Patrick Bayou have shown that PCBs and other COPCs have historically accumulated in soft sediments. The upstream area that is the focus of this Data Report has a higher hydraulic gradient compared to downstream areas of the Site; in large part, it is characterized by a harder substrate with a large proportion of coarse sand, gravel, and cobble size materials. The materials are difficult to sample and past sampling results show that they generally have lower concentrations of PCBs; however, discrete areas of finer-grained soft sediment accumulations, such as the area around Station PB081, have exhibited elevated levels of PCBs (Anchor QEA 2010). These observations suggest that any additional characterization of the distribution of PCBs in upstream areas of the Site should focus on identifying areas of soft sediment accumulation.

Additionally, past water column sampling involved collecting samples from only one location (Station PB076) in the upstream portion of the Site. Because detectable concentrations of PCBs were reported at Station PB076—and it is the upstream-most station where PCBs were detected in surface water—additional data were required to better characterize the distribution of PCBs in surface water.

The objectives of this investigation were to:

- Determine the location and thickness of soft sediment accumulations in the upstream areas of the Site between Station PB066 and Station PB101 by manually probing.
- Sample and analyze sediments from soft sediment accumulations for on-site testing for total PCBs using field assay test kits; based on the field assay results, samples were selected for additional laboratory testing.
- Investigate the culverts beneath SH 225 for the sediment condition and vertical composition of sediment.
- Sample and analyze surface water samples between Stations PB066 and PB101 to complete the surface water dataset.

2 SEDIMENT AND SURFACE WATER COLLECTION, PROCESSING, AND ANALYSIS

This section describes the methods used to collect surface sediment and surface water samples and data at the Site. Additional details regarding collection methods are presented in the Quality Assurance Project Plan (QAPP; Anchor 2007b) and the SAP. Copies of probing logs, sediment and surface water collection forms, and completed chain-of-custody (COC) forms are provided in Appendix A.

2.1 Sediment Probing

Sediment probing was conducted to determine the extent, location, and depth of soft sediments present in Patrick Bayou between Stations PB066 and PB101. The following subsections describe the locations, identification, and methods used to complete the sediment probing.

2.1.1 Sediment Probing Locations

Sediment probing occurred from August 2 through August 4, 2011. Longitudinal and lateral probing transects in the channel were set at a maximum of 50-foot spacing. More intensive probing occurred in areas where soft sediment accumulations were identified. Between Stations PB066 and PB101, 114 locations were probed in Patrick Bayou (Figure 3). Within this 50-foot grid pattern, areas visually identified as having finer grained sediment accumulations were targeted when possible.

2.1.2 Sediment Probing Locations Identification Scheme

The identification scheme for sediment probing locations used the letters “PBUC” (“Patrick Bayou Upstream Characterization”), to depict this investigation followed by sequential numbers assigned in the field. For example, PBUC001 was the first sediment probing location and PBUC020 was the 20th sediment probing location².

² Because actual probing locations were not determined prior to the sampling event, the approximate linear distance from the mouth of Patrick Bayou to each probing location was not known during the implementation of the SAP, resulting in the probing location naming system described in this section. After the completion of the sampling event, probing locations where samples were collected were renamed using the conventional Patrick Bayou station numbering system to reflect the station distance from the mouth of Patrick Bayou in hundreds of feet (as described in Section 1.1).

2.1.3 *Sediment Probing Methods*

A steel rod marked at 1-centimeter (cm) intervals was used to probe the sediment depths. The rod was lowered to the sediment-water interface and water depth was noted. The soft sediment depth was then measured by pushing the rod into the sediment until refusal, using reasonable single-human force. The depth of the penetrated sediment was noted by subtracting the water depth from the depth at which refusal was met. The time, date, probing station identification, coordinates, water depth, depth of refusal, sediment thickness, estimated sediment type, and any presence of sheen³ or other distinguishing characteristics observed on the water surface during probing were recorded.

2.1.4 *Sediment Sample Identification Scheme*

Each sediment sampling location was assigned a unique alphanumeric location ID number containing the station ID, sample type, depth interval, and sample date. “PB” (“Patrick Bayou”) was used as the first two characters of the station ID to identify the Site. The next characters indicated the station identified associated with the channel station in hundreds of feet. Following the station ID number, the individual samples were identified by progressive 1-digit numeric values (for example, 1 or 2), a 2-digit matrix identifier (“SS” for surface sediment; “SC” for sediment core), and a 3-digit numeric value identifying the lower interval depth measurement in cm. After the sample number, the samples were identified by the sample date (YYMMDD).

Finally, “N” was appended to the end of the sample number to indicate a normal sample; “D” was used for a field duplicate. For example, a Patrick Bayou channel sediment sample ID was PB068-1SS010-20110804-N, indicating a normal surface sediment sample (0 to 10 cm) collected from Station PB068 on August 4, 2011.

2.1.5 *Sediment Sample Collection Methods*

Surface sediment grab samples were collected from areas where soft sediment accumulation thicknesses were greater than 10 cm and the sediment could be collected using an Ekman dredge. Material collected with the sampling device was evaluated by the field lead for

³ The cause or origin of the sheen could not be documented based on field observations.

acceptability, using criteria outlined in the SAP. If a sample failed to meet any of the criteria, it was rejected, and additional attempts to retrieve an acceptable sample were made. Once a sample was judged acceptable, the upper 10 cm of the sediment was collected. Upon collection, time, date, recovery, physical description, odor, debris, biological activity, presence and depth of the redox potential discontinuity layer, sheen, and any other distinguishing characteristics were recorded.

Samples were collected for analysis of total PCB Aroclors using on-site PCB field assay test kits. Each sample was also split, and a portion preserved for possible future laboratory-based analyses using standardized methods (such as USEPA SW-846). All split samples were preserved at $4 \pm 2^\circ$ Celsius (C), pending results from the on-site PCB field assays. Split samples from the six PCB field assay samples with the highest measured total PCB Aroclor concentrations were included for confirmation analysis by the off-site laboratory for PCB Aroclors and PAHs. A summary of samples and corresponding analyses is provided in Table 1.

2.1.6 Sediment Sample Locations

During the course of this investigation, 15 sediment samples were collected. The collection of additional samples was attempted at several areas; however, the presence of cobble and rubble did not allow acceptable samples to be collected. Samples were collected between Stations PB066 and PB087 (Figure 4; Table 2). Several attempts were made to collect sediment upstream of PB087, but no attempts were successful.

2.1.7 PCB Field Assay Analysis and Methods

PCB field assays were performed using the RaPID Assay Test Kit® made by SDIX of Newark, Delaware. The RaPID Assay PCB Test Kit® has a minimum detection limit of 0.5 part per million (ppm; that is, milligrams per kilogram [mg/kg]) total PCBs as Aroclor 1285. Samples were dried to less than 30 percent moisture content by first centrifuging them and decanting off the resulting water. Additional interstitial water was then removed by blotting the sediment thoroughly with coffee filters. Testing was completed on representative samples prior to conducting the PCB testing to determine that this method resulted in acceptable moisture content levels. Samples were extracted, prepared, and analyzed for PCB Aroclors,

as described in the Sample Extraction Kit User's Guide and the RaPID Assay Test Kit User's Guide. These documents and a summary of extraction, preparation, and analysis methods can be found in the SAP.

2.2 Culvert Sediment Samples

The following subsections describe the identification, location, and collection method for sediment samples collected from sediments existing in the culverts beneath SH 225. Samples were collected from each of the five culverts (Figure 5).

2.2.1 Culvert Sediment Sample Identification Scheme

Each sediment sampling location was assigned a unique alphanumeric location ID number containing the station ID, sample type, depth interval, and sample date. "PB" was used as the first two characters of the station ID to identify the Site. The next characters indicated the station identified associated with the channel station in hundreds of feet. Because all the culverts were located 11,900 feet from the mouth of Patrick Bayou (PB119), additional numbering appended to PB119 was required to make each culvert station ID number unique. The eastern-most culvert was named PB119.1, and each additional culvert to the west was labeled sequentially, with the western-most culvert identified as PB119.5 (Figure 5).

Following the station ID number, the individual samples were identified by progressive 1-digit numeric values (for example, 1 or 2) a 2-digit matrix identifier ("SS" for surface sediment; "SC" for sediment core), and a 3-digit numeric value identifying the lower interval depth measurement in cm. After the sample number, the samples were identified by the sample date (YYMMDD).

Finally, "N" was appended to the end of the sample number to indicate a normal sample; "D" was used for a field duplicate. For example, a culvert sediment sample ID was PB119.3-1SS010-20110805-D, indicating a field duplicate surface sediment sample (0 to 10 cm) collected from the middle culvert on August 5, 2011.

2.2.2 Culvert Sediment Sample Locations

Sediment samples were collected at the upstream end of the five box culverts that run underneath SH 225 on August 5, 2011 (Table 2). Three sediment samples were collected in 30 cm intervals down to a depth of 90 cm from the eastern-most culvert (PB119.1). One sediment surface sample consisting of the top 10 cm was collected from each of the remaining four culverts (PB119.2 through PB119.5). The location of each station was determined by measuring the distance from the upstream opening of the culvert to the core location. Samples were collected from approximately 10 to 15 feet inside the south end of the culverts.

2.2.3 Culvert Sediment Sample Collection Methods

Three sediment samples were collected from the eastern box culvert under SH 225 at sample intervals of 0 to 30 cm, 30 to 60 cm, and 60 to 90 cm. Samples were collected using a stainless steel shovel. A stainless steel ruler was used to confirm the proper sample depth intervals. The full depth interval was homogenized prior to removing aliquots for each analysis. Any crushed concrete, cobble, or similar material was removed from the sample prior to homogenization. Laboratory analyses for these samples included dioxins and furans, PCB congeners, metals (including arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc), PAHs and alkylated PAH homologs, total organic carbon (TOC), and grain size.

One sediment surface sample, consisting of the top 10 cm, was collected from each of the remaining four culverts. Samples were collected and laboratory analyses for the surface sediment samples were performed using the same methods described in the previous paragraph.

Sample depth, material grains size and texture, odor, debris, biological activity, presence of an oil sheen, and any other distinguishing characteristics or features were recorded for all sediment samples.

2.3 Surface Water

The following subsections describe the identification, location, and collection methods of the four surface water samples collected during this investigation. Two of the four samples were collected at the upstream and downstream ends of the investigation area. The locations of the remaining two samples were based on the area with the highest relative total PCB sediment concentrations from the PCB field assay testing.

2.3.1 Surface Water Sample Identification Scheme

Each surface water sampling location was assigned a unique alphanumeric location ID number, containing the station ID, sample type, depth interval information, and date and followed a scheme similar to the one for sediment samples. “PB” was used as the first two characters of the station ID to identify the Site. The next characters indicated the station identified associated with the channel station in hundreds of feet. The station ID was followed by a one-digit numeric substation identifier, a two-digit matrix identifier (“SW” for surface water grab), and a three-digit number identifying the position in the water column (“MID” for mid-depth of the water column). After the sample number, the samples were identified by the sample date (YYMMDD).

Finally, “N” was appended to the end of the sample number to indicate a normal sample; “D” was used for a field duplicate. For example, a surface water sample ID was PB066-1SWMID-20110808-N, indicating a normal surface water sample collected at Station PB066, collected at the mid-depth of the water column on August 8, 2011.

2.3.2 Surface Water Sample Locations

The four surface water samples were collected on August 8, 2011 (Figure 6; Table 2). A sample was collected from both the downstream (Station PB066) and upstream (Station PB101) boundaries of the investigation area. The other two samples were collected immediately upstream and immediately downstream of the area designated as having the highest relative PCB concentrations, based on the PCB field assay results. The sediment sample with the highest PCB concentrations, based on the field assay results, was collected at Station PB081. Surface water samples were then collected at Stations PB080 and PB082.1. Samples were collected at the mid-depth of the water column. Because the water depths at

these locations were generally very shallow (less than 2 feet), and previous surface water sampling at the Site showed that the water column is generally well-mixed, it was assumed that mid-depth samples adequately characterize the entire water column.

2.3.3 Surface Water Sample Collection Methods

Samples were collected according to the QAPP and SAP. Surface water collection was conducted after the sediment probing and sampling was complete. To minimize potential interferences from suspended particulate materials associated with the sediment probing and sampling, surface water sampling was conducted several days after the sediment sampling to assure any particulates suspended into the water column from the sediment sampling had settled. Actual sampling dates of each media are:

- **Channel Sediment Sampling:** August 2, 3, and 4, 2011
- **Culvert Sediment Sampling:** August 5, 2011
- **Channel Surface Water Sampling:** August 8, 2011

Surface water samples were collected during a slack to outgoing tide. The surface water was collected using a peristaltic pump. A measuring tape and weight were attached to the tubing to ensure that the target depth was reached. The water was pumped directly into the appropriate pre-labeled sample containers. According to the SAP, if excessive turbidity (relative to the natural turbidity of the water for that day) was observed, the sample was to be discarded and additional time was allowed for the disturbed bottom sediment to clear; however, excess turbidity was not observed during the sample collection activities.

2.4 Field Deviations from the Quality Assurance Project Plan or Sampling and Analysis Plan

According to the SAP, sediment probing was to begin at the downstream-most portion of the area of interest (Station PB066) and continue upstream. A continuous downstream to upstream probing regime could not be followed due to safety constraints regarding the Shell East Property Flare, which creates a hazard area that must be avoided during operation. To accommodate the schedule set forth by the refinery operations, sediment probing began immediately north of the railroad bridge at approximately Station PB078 and continued downstream to approximately Station PB070A. Sediment probing then resumed south of the

railroad bridge and continued upstream to approximately PB086. Following this, the sampling team returned to the area of the bayou surrounding the Shell East Property Flare (as agreed upon with refinery personnel) for sediment probing. The final upstream portion of the Site from PB086 to PB101 was then probed, moving downstream to upstream.

According to the SAP, channel sediment sample collection activities were also to begin at the downstream-most location and proceed upstream to minimize any potential for sample interference caused by disturbed sediment. Similar safety constraints related to the Shell East Property Flare prevented a continuous downstream to upstream sampling regime as described in the SAP. Samples collected downstream of upstream samples were not collected on the same day, thus minimizing any potential interference from disturbed sediments. Additionally, sediment sample intervals were to be collected from 0 to 10 cm according to the SAP; however, a penetration depth of only 8 cm was achieved for one sample, PB069-1SS008-20110804-N, because stiff clay was encountered below the soft sediments at that location.

During the implementation of the culvert sediment sampling portion of this investigation, it was discovered that the sediment in the box culverts was covered by large amounts of gravel and cobble from the highway above. As a result, sediment grabs and a sediment core could not be used to complete the sediment sampling in the box culvert as outlined in the SAP. The only method that allowed for penetration into the sediment was a stainless steel shovel. The overlying cobble and gravel was removed from the sample site then the stainless steel shovel was used to penetrate the sediment and collect a sample. The shovel was decontaminated between sample locations.

No significant deviations from the SAP occurred during the implementation of the surface water portion of the investigation.

3 LABORATORY METHODS

This section briefly describes the analytical methods used to generate the chemistry data for the sediment and surface water samples in this Data Report. A detailed description of the analytical methods can be found in the SAP. This section also summarizes any deviations by the laboratory from the SAP. The complete data packages from the laboratories are included in Appendix B.

3.1 Methods for Chemical Analysis

Table 1 summarizes the sediment and surface water samples that were analyzed for each of the chemical methods listed in the following subsections. This Data Report includes data analyses performed by SGS North America (SGS) in Wilmington, North Carolina and Alpha Analytical (Alpha) in Mansfield, Massachusetts. SGS performed the PCB congener and dioxin/furan analyses and Alpha performed the remaining analyses. Alpha is National Environmental Laboratory Accreditation Program (NELAP)-accredited by the Louisiana Environmental Lab Accreditation Program (LELAP), Certificate No. 03090. SGS is NELAP-accredited by the State of Florida Department of Health, Bureau of Laboratories (Certificate No. E87634). Five reports were received from the laboratories and were validated.

3.1.1 Sediment

As outlined in the SAP, 22 sediment samples and two duplicates were sent to the laboratories for analyses. The six sediment samples plus one duplicate sample collected from on-site areas between Stations PB068 and PB082 were analyzed for PAHs and PCB Aroclors. The remaining nine samples collected from this area were archived for possible future analysis. The seven sediment samples plus one duplicate sample that were collected from the SH 225 culverts were analyzed for PCB congeners, dioxin/furans, total metals (including mercury), and PAHs. The seven samples were also analyzed for grain size, specific gravity, and TOC.

3.1.2 Surface Water

As outlined in the SAP, the four surface water samples and one duplicate were sent to the laboratories for analyses of PCB congeners, TOC, and total suspended solids (TSS).

3.2 Laboratory Deviations from the Sampling and Analysis Plan

The following subsections discuss each of the laboratory's deviations from the SAP.

3.2.1 Sediment Chemical Analyses

Alpha and SGS adhered to the methods and procedures outlined in the SAP and as listed in Table 4 of the SAP with the following exceptions:

- Mercury analyses were performed using USEPA Method 7474 instead of Method 7471A. The two methods are comparable and are expected to yield similar results. All sample results were above the detection limits and data quality is not expected to be impacted.
- Several of the non-detected practical quantitation limits (PQLs) for PAHs and alkylated PAHs and PCB Aroclors and congeners were above the levels outlined in the SAP. This was because several of the samples required dilutions due to high concentrations of target and non-target analytes.

3.2.2 Surface Water Chemical Analyses

Alpha and SGS adhered to the methods and procedures outlined in the SAP and as listed in Table 4 of the SAP, with the exception of the TSS analyses, which were performed using SM2540G instead of USEPA method 160.2. These two methods are comparable and are expected to produce similar results, so data quality is not expected to be impacted.

4 ANALYTICAL DATA VALIDATION AND DATA MANAGEMENT

Third-party data validation was performed on each dataset of chemical and physical analyses, with the exception of specific gravity data. Data validation verified the accuracy and precision of chemical and physical determinations performed during this investigation.

This section presents the results of the data validation conducted by Laboratory Data Consultants (LDC). The following sections summarize the overall data quality and do not necessarily address each individual sample result affected by data qualification. Detailed information regarding sample result qualifications is available in the data validation reports in Appendix C.

4.1 Overall Data Quality

Detailed data quality objectives and quality assurance procedures are provided in the SAP. Laboratory data packages were validated by LDC under USEPA National Functional Guidelines (USEPA 1999, 2004, 2005, and 2008) and using the data quality objectives described in the SAP. Any data qualifiers applied to the data during the final validation procedures have been incorporated into the final database for this project. Data qualifiers assigned because of the data validation and their definitions are shown on the analytical results tables for the sediment and surface water samples.

All data were considered useable as reported or as qualified, and no data were rejected. The data may have been qualified as estimated for a particular analysis based on method or technical criterion, as stated in the functional guidelines (USEPA 1999, 2004, 2005, and 2008). Data qualified with a “J” indicates that the associated numerical value is the approximate concentration of the analyte. Data qualified with a “UJ” indicates the approximate reporting limit below which the analyte was not detected. In some cases, reporting limits were raised to account for method blank contamination or matrix interference.

4.2 Sample Transport and Holding Times

All samples were received at the laboratories in good condition and within the recommended temperature range. All analyses were performed within holding times.

4.3 Field Duplicate Results

Two field duplicates were collected with the sediment samples and one duplicate was collected with the surface water samples. Duplicates were analyzed for the same parameters as the parent samples, with the exceptions of grain size, specific gravity, and TOC analyses in the culvert sediment samples. No results were qualified based on field duplicate results. Field duplicate results are incorporated into the discussion of results and discussed in detail in the data validation reports (Appendix C).

4.4 Laboratory Quality Control

The validation reports indicate the majority of the data results did not require qualification. Some data were qualified as estimated based on data quality objective or method exceedances. No data were rejected.

Some metals, dioxin/furan, and PCB congener results were qualified as non-detects due to detections in the associated method blanks. Some results for metals, PAHs, and grain size were qualified as estimated due to matrix spikes (MS) and matrix spike duplicates (MSD) recoveries or laboratory duplicate results outside of the project-specified control limits. Four PCB Aroclor results were qualified as estimated high due to surrogate recoveries above laboratory control limits. Some dioxin/furan and PCB congener results were qualified due to internal standard recoveries outside of control limits and/or because they were qualified as Estimated Maximum Potential Concentration (EMPC) results by the laboratory. Eight lead results were qualified as estimated due to a serial dilution result outside of the method control limits.

All data are usable as reported or as qualified.

5 RESULTS

This section presents the results of the probing investigation and the chemical analyses conducted on the sediment and surface water samples. Only the final reporting limits and analytical results are presented in the tables associated with this section. One-half the detection limit was used when calculating total PCB Aroclors and congeners, total dioxins and furans, and total PAH concentrations.

5.1 Sediment Probing

Between Stations PB066 and PB101, 114 locations were probed (Figure 3). If the presence of sheen was observed on the water surface during probing, this was noted on the datasheet. Sheen was observed at 26 sediment probing locations between approximately Stations PB066 and PB095. The origin of the sheen (e.g., biological or chemical) could not be determined based on these observations. No sheen was observed upstream of PB096.

Substrate types encountered included clay, silt, gravel, and sand. Figure 7 presents the location and types of surface substrates. Table 3 provides the sediment probing results. Clay was the most prevalent substrate downstream of the gunite channel, between Stations PB066 and PB080. Only two locations with gravel bottom were encountered in this area. The soft silty substrates were found generally along the banks of the bayou. Mid-channel substrates were generally clay or sand.

Soft, silty substrates were not observed in the gunite channel (Stations PB080 to PB101). The substrate in this portion was predominately sand, gravel, and cobble. Some finer-grained sediment, such as clay, was found in the downstream portion of the gunite channel (downstream of PB090); however, the substrate became much sandier upstream between Stations PB090 and PB101.

5.2 Patrick Bayou Channel Sediment Samples

The following subsections present the results of chemical analyses conducted on the sediment grab samples collected within the investigation area (between Stations PB066 and PB101). Samples collected from within the Patrick Bayou channel were analyzed on-site for

PCB Aroclors using the field assay kits (Table 4), and a subset of those samples were analyzed by a laboratory for PAHs and PCB Aroclors (Table 5).

5.2.1 Sediment PCB Field Assay

Fifteen sediment samples were collected from within the Patrick Bayou channel and analyzed for total PCB Aroclors using a PCB field assay test kit. Sample results ranged from 883 micrograms per kilogram ($\mu\text{g/kg}$) to 27,800 $\mu\text{g/kg}$ (Table 4; Figure 8). The highest total PCB Aroclor concentration was reported at Station PB081.1 (27,800 $\mu\text{g/kg}$). The sample immediately upstream of this sample, Station PB082, had a lower PCB Aroclor concentration (13,400 $\mu\text{g/kg}$). The two sediment samples collected upstream of these samples, Stations PB086 and PB087, had lower concentrations (2,850 $\mu\text{g/kg}$ and 1,980 $\mu\text{g/kg}$, respectively). The lowest total PCB Aroclor concentrations were encountered between approximately Stations PB071 and PB076 (883 $\mu\text{g/kg}$ to 1,810 $\mu\text{g/kg}$).

The six sediment samples with the highest measured total PCB Aroclor concentrations in the field assay tests were submitted for laboratory analysis of PAHs and PCB Aroclors. These samples were:

- Station PB068 (12,400 $\mu\text{g/kg}$)
- Station PB069.1 (5,770 $\mu\text{g/kg}$)
- Station PB070A (5,320 $\mu\text{g/kg}$)
- Station PB076 (10,300 $\mu\text{g/kg}$)
- Station PB081.1 (27,800 $\mu\text{g/kg}$)
- Station PB082 (13,400 $\mu\text{g/kg}$)

5.2.2 Laboratory Analysis PCB Aroclors

As described in the previous section and in Section 2.1.5, six splits and one duplicate from the field assay sediment samples containing the highest concentrations of total PCB Aroclors were submitted to the analytical laboratory for PCB Aroclor analyses. PCB Aroclor 1248 and Aroclor 1254 were the only detected Aroclors in all six sediment samples (Table 5). Concentrations of total PCB Aroclor ranged from 2,450 $\mu\text{g/kg}$ at Station PB070A to 112,000 $\mu\text{g/kg}$ at Station PB081.1 (Figure 8).

Generally, concentrations of total PCB Aroclor tended to decrease with increasing downstream distance from Station PB081.1. Contrary to this trend, the second highest PCB Aroclor concentration was measured at Station PB068, the downstream-most sampling location. Table 6 shows that the PCB field assay test kits tend to under-predict the concentration of PCBs in areas with higher PCB concentrations.

5.2.3 PAHs

The analyses for sediment samples included 19 PAHs and 16 alkylated PAHs. All 19 PAHs were detected in all six samples (Table 5). All alkylated PAHs were also detected in all samples except for C4-Chrysenes, which were not detected at Stations PB068, PB069.1, and PB081.1.

Concentrations of total PAHs including the alkylated homologs ranged from 15,900 µg/kg reported at Station PB070A to 642,000 µg/kg (801,000 µg/kg in the duplicate) reported at Station PB081.1 (Figure 9). Total PAH concentrations tended to decrease with increasing downstream distance from Station PB081.1. As with PCB concentrations, the second highest concentration of total PAHs was reported at Station PB068, the downstream-most sampling location.

5.3 Culvert Sediment Samples

The following subsections present the results of the chemical analyses conducted on surface and subsurface sediment samples collected from the five culverts that run beneath SH 225. Table 7 presents the analytical results of these samples. Surface samples were collected from 0 to 30 cm at Station PB119.1 and from 0 to 10 cm at Stations PB119.2, PB119.3, PB119.4, and PB119.4. Subsurface samples were collected at Station PB119.1 from 30 to 60 cm and 60 to 90 cm.

5.3.1 Metals

All nine metals analyzed were detected in all eight sediment samples (seven normal samples plus one duplicate), with the exception of selenium, which was detected in only two of the eight (which includes the duplicate sample) sediment samples (Table 7). Concentrations of

each metal were generally consistent between samples. The range of concentrations is shown on Table 8.

5.3.2 PAHs

In the analyses for the sediment samples from the culverts, 19 PAHs and 16 alkylated PAHs were included (Table 7). All PAHs were detected in all seven sediment samples, with the exception of naphthalene (detected in all but three samples) and 2-methylnaphthalene (detected in all but two samples). All alkylated PAHs were detected in all samples.

Concentrations of total PAHs (including alkylated PAHs) from the surface sediment samples ranged from 16,000 µg/kg at Station PB119.3 to 64,200 µg/kg at Station PB119.5.

The concentrations of total PAHs from the subsurface sediment samples were less than concentration reported from the surface sediment samples (3,510 µg/kg and 6,310 µg/kg).

5.3.3 PCB Congeners

In sediment from the culverts, 196 of 209 individual PCB congeners were detected at least once (Table 7). The highest concentration of total PCB congeners was 17,400 nanograms per kilogram (ng/kg), reported at Station PB119.5 in the western-most culvert. The second highest concentration of total PCB congeners was 17,100 ng/kg, reported at Station PB119.1 in the eastern-most culvert. The lowest concentration of total PCB congeners was 8,380 ng/kg, reported at Station 119.3 in the middle culvert. Total PCB congener concentrations from the subsurface sediment samples (11,100 ng/kg and 12,900 ng/kg) were less than the concentration reported from the corresponding surface sediment sample (17,100 ng/kg).

PCB congener toxic equivalents (TEQ) were calculated using the mammalian 2005 World Health Organization toxic equivalency factors (TEF; Van den Berg et al. 2006). PCB congener TEQ ranged from 0.214 ng/kg to 0.48 ng/kg in the surface sediment samples. The highest PCB congener TEQ was reported at Station PB119.5 (western-most culvert). The PCB congener TEQ values calculated for the subsurface sediment samples were higher (0.560 ng/kg at 30 to 60 cm and 0.690 ng/kg at 60 to 90 cm) than surface sediment PCB congener TEQ (0.460 ng/kg at 0 to 30 cm).

5.3.4 Dioxin/Furan Congeners

Eight of the 17 individual dioxin and furan congeners were detected in all six surface sediment samples, two were detected in at least one sample, and seven were not detected at all. Seven of the dioxin and furan congeners were detected in both subsurface sediment samples, five were detected at least once, and five were not detected at all (Table 7).

The highest concentration of total dioxin/furan congeners (1,070 ng/kg) was reported at the surface sediment sample collected at Station PB119.1, the eastern-most culvert. The lowest concentration of total dioxin/furan congeners (412 ng/kg) from the surface sediment samples was reported from the duplicate sample collected at Station PB119.3. The total dioxin/furan congeners concentrations in the subsurface sediment samples (200 ng/kg at 30 to 60 cm and 447 ng/kg at 60 to 90 cm) were less than the concentration reported from the corresponding surface sediment sample (1,070 ng/kg at 0 to 30 cm).

Dioxins/furan TEQs were also calculated using the mammalian 2005 World Health Organization TEFs (Van den Berg et al. 2006). The dioxin/furan TEQs in the surface sediment samples ranged from 1.75 ng/kg to 5.78 ng/kg. The highest dioxin/furan TEQ was reported at Station PB119.5, the western-most culvert and the lowest dioxin/furan TEQ was reported at Station 119.4, the adjacent culvert. Dioxin/furan TEQs in the subsurface samples (3.01 ng/kg at 30 to 60 cm and 1.33 ng/kg at 60 to 90 cm) were less than the concentration reported from the corresponding surface sediment sample (4.14 ng/kg at 0 to 30 cm).

Total dioxin/furan and PCB congener TEQs were also calculated (Van den Berg et al. 2006). These values ranged from 1.97 ng/kg to 6.25 ng/kg. The highest total dioxin/furan PCB congener TEQ was reported at Station PB119.5, the western-most culvert, and the lowest dioxin/furan TEQ was reported at Station PB119.4, the adjacent culvert. Total dioxin/furan and PCB congener TEQs in the subsurface samples (3.56 ng/kg at 30 to 60 cm and 2.02 ng/kg at 60 to 90 cm) were less than the concentration reported for the corresponding surface sediment sample (4.60 ng/kg at 0 to 30 cm).

5.4 Surface Water

The following subsections present the results of the chemical analyses conducted on the surface water samples. Table 9 presents the results for the four surface water samples that were analyzed for TOC, TSS, and PCB congeners. The water samples were collected from mid-depth locations during an out-going tide.

5.4.1 Total Organic Carbon and Total Suspended Solids

In general, there was no apparent difference between samples for concentrations of TSS or TOC (Table 9). TSS values ranged from 16 milligrams per liter (mg/L) reported at Stations PB082.1 and PB101C to 22 mg/L reported at Station PB080. TOC ranged from 0.0015 percent at Station PB080 to 0.002 percent at Station PB101C.

5.4.2 PCB Congeners

There were 187 of 209 individual PCB congeners detected in at least one surface water sample (Table 7). The highest concentration of total PCB congeners was reported at Station PB080 (143 nanograms per liter [ng/L]). The farthest up-stream station, Station PB101C, had the lowest total PCB congener concentration (5.65 ng/L). Figure 10 presents the results for total PCB congeners by station.

PCB congener toxic TEQs were calculated using the mammalian 2005 World Health Organization TEFs (Van den Berg et al. 2006). PCB congener TEQs ranged from 0.000119 ng/L at Station PB101C to 0.0015 ng/L at Station PB080 in the surface water samples.

6 SUMMARY

This investigation was comprised of several different sampling activities, including sediment probing, sediment sample collection from within Patrick Bayou, sediment sample collection from the culverts that run underneath SH 225, and surface water collection. Between Stations PB066 and PB101, 114 locations were successfully probed and substrate type was observed. During the probing portion of this investigation, 15 areas of soft sediment accumulation were discovered and sampled. These samples were analyzed on-site for total PCB Aroclors using a PCB field assay, and a subset of these samples were sent for off-site laboratory analyses. Five surface sediment and two subsurface sediment samples were also successfully collected from the culverts underneath SH 225 (at Station PB119). Lastly, four surface water samples were collected between Stations PB066 and PB101. Overall, all samples were collected consistent with the SAP and are of sufficient quality to meet the sampling objectives outlined in Section 1.2.

The data collected during this investigation will help to establish the extent of PCBs and PAHs in sediment in the upstream portion of Patrick Bayou and provide additional information on surface water PCB concentrations in the upstream portion of Patrick Bayou.

7 REFERENCES

- Anchor Environmental, LLC (Anchor), 2006. Preliminary Site Characterization Report. Patrick Bayou Superfund Site. Deer Park, Texas. Prepared for USEPA and Patrick Bayou Joint Defense Group. Prepared by Anchor Environmental, L.L.C. April 2006.
- Anchor, 2007a. Work Package 2 Vertical Profiling Hydrodynamic Field Data Collection and Contaminant Source Evaluation. Patrick Bayou Superfund Site, Deer Park, Texas. Prepared for U.S. Environmental Protection Agency and the Patrick Bayou Joint Defense Group. Prepared by Anchor Environmental, L.L.C. April 2007.
- Anchor 2007b. Quality Assurance Project Plan/Remedial Investigation Work Plan. Patrick Bayou Superfund Site, Deer Park, Texas. Prepared for USEPA and Patrick Bayou Joint Defense Group. Prepared by Anchor Environmental, L.L.C. January 2007.
- Anchor QEA, LLC (Anchor QEA), 2010. Sediment and Surface Water Contaminant of Potential Concern Delineation Data Report. Patrick Bayou Superfund Site, Deer Park, Texas. Prepared for U.S. Environmental Protection Agency and the Patrick Bayou Joint Defense Group. Prepared by Anchor QEA May 2010.
- Anchor QEA, 2011. Final Upstream Patrick Bayou Characterization Sampling and Analysis Plan. Patrick Bayou Superfund Site, Deer Park, Texas. Prepared for U.S. Environmental Protection Agency and the Patrick Bayou Joint Defense Group. Prepared by Anchor QEA June 2011.
- USEPA (U.S. Environmental Protection Agency), 1999. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. U.S. Environmental Protection Agency, Office of Emergency Response. USEPA 540/R-99/008. October 1999.
- USEPA, 2004. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation (OSRTI). USEPA 540-R-04-004. October 2004.
- USEPA, 2005. USEPA Contract Laboratory Program National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data

- Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation (OSRTI). USEPA 540-R-05-001. September 2005.
- USEPA, 2008. USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. USEPA 540-R-08-01. June 2008.
- Van den Berg, M., et al., 2006. The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds. *Toxicological Sciences* 93(2): 223–241.

TABLES

Table 1
Sample Analysis Summary

Patrick Bayou Sample ID	Temporary Field Sample ID	Depth Interval (cm)	PCB Field Assay	Grain Size	TOC	TSS	Specific Gravity	Mercury	Total Metals	PAHs	PCB Congeners	PCB Aroclors	Dioxins/Furans
Patrick Bayou Channel Sediment Samples													
PB078-1SS010-20110802-N	PBUC002-1SS010-20110802-N	0-10	X										
PB076-1SS010-20110802-N	PBUC012-1SS010-20110802-N	0-10	X							X		X	
PB075-1SS010-20110802-N	PBUC016-1SS010-20110802-N	0-10	X										
PB074-1SS010-20110802-N	PBUC026-1SS010-20110802-N	0-10	X										
PB072-1SS010-20110802-N	PBUC032-1SS010-20110802-N	0-10	X										
PB071-1SS010-20110802-N	PBUC039-1SS010-20110802-N	0-10	X										
PB070-1SS010-20110802-N	PBUC042-1SS010-20110802-N	0-10	X							X		X	
PB081-1SS010-20110803-D	PBUC053-1SS010-20110803-D	0-10								X		X	
PB081-1SS010-20110803-N	PBUC053-1SS010-20110803-N	0-10	X							X		X	
PB082-1SS010-20110803-N	PBUC055-1SS010-20110803-N	0-10	X							X		X	
PB086-1SS010-20110803-N	PBUC065-1SS010-20110803-N	0-10	X										
PB087-1SS010-20110803-N	PBUC066-1SS010-20110803-N	0-10	X										
PB069-1SS008-20110804-N	PBUC070-1SS008-20110804-N	0-8	X							X		X	
PB068-1SS010-20110804-N	PBUC076-1SS010-20110804-N	0-10	X							X		X	
PB067-1SS010-20110804-N	PBUC080-1SS010-20110804-N	0-10	X										
PB066-1SS010-20110804-N	PBUC088-1SS010-20110804-N	0-10	X										
Culvert Sediment Samples													
PB119.1-1SC030-20110805-N	PBUCCLA-1SC030-20110805-N	0-30		X	X		X	X	X	X	X		X
PB119.1-1SC060-20110805-N	PBUCCLA-1SC060-20110805-N	30-60		X	X		X	X	X	X	X		X
PB119.1-1SC090-20110805-N	PBUCCLA-1SC090-20110805-N	60-90		X	X		X	X	X	X	X		X
PB119.2-1SS010-20110805-N	PBUCCLB-1SS010-20110805-N	0-10		X	X		X	X	X	X	X		X
PB119.3-1SS010-20110805-N	PBUCCLC-1SS010-20110805-N	0-10		X	X		X	X	X	X	X		X
PB119.3-1SS010-20110805-D	PBUCCLC-1SS010-20110805-D	0-10						X	X	X	X		X
PB119.4-1SS010-20110805-N	PBUCCLD-1SS010-20110805-N	0-10		X	X		X	X	X	X	X		X
PB119.5-1SS010-20110805-N	PBUCCLE-1SS010-20110805-N	0-10		X	X		X	X	X	X	X		X
Surface Water Samples													
PB066-1SWMID-20110808-N	PB066-1SWMID-20110808-N	--			X	X					X		
PB101-1SWMID-20110808-N	PB101-1SWMID-20110808-N	--			X	X					X		
PB082-1SWMID-20110808-N	PBUC053U-1SWMID-20110808-N	--			X	X					X		
PB080-1SWMID-20110808-N	PBUC053D-1SWMID-20110808-N	--			X	X					X		
PB080-1SWMID-20110808-D	PBUC053D-1SWMID-20110808-D	--			X	X					X		

Notes:

cm - centimeters

TOC - total organic carbon

TSS - total suspended solids

PAHs - polycyclic aromatic hydrocarbons

Table 2
Sediment and Surface Water Sample Locations

Patrick Bayou Station ID	Temporary Field Station ID	Station Coordinates ¹	
		Northing	Easting
Sediment Samples			
PB078	PBUC002	13830214.95	3200763.929
PB076.1	PBUC012	13830426.95	3200744.033
PB075	PBUC016	13830491.48	3200830.911
PB074.1	PBUC026	13830631.93	3200931.587
PB072	PBUC032	13830737.85	3201009.265
PB071	PBUC039	13830805.6	3201108.815
PB070A	PBUC042	13830903.51	3201087.255
PB081.1	PBUC053	13829983.6	3200772.123
PB082	PBUC055	13829914.32	3200751.881
PB086	PBUC065	13829533.74	3200814.878
PB087	PBUC066	13829503.67	3200856.567
PB069.1	PBUC070	13830973.3	3201205.859
PB068	PBUC076	13831121.51	3201209.861
PB067	PBUC080	13831176.77	3201336.379
PB066.1	PBUC088	13831264.08	3201412.187
PB119.1	PBUCCLA	13826344.91	3201558.2
PB119.2	PBUCCLB	13826348.66	3201540.45
PB119.3	PBUCCLC	13826350.5	3201530.99
PB119.4	PBUCCLD	13826351.37	3201525.09
PB119.5	PBUCCLE	13826352.04	3201515.69
Surface Water Samples			
PB066B	PB066	13831305.66	3201384.326
PB080	PBUC053D	13830051.11	3200769.755
PB082.1	PBUC053U	13829942.54	3200777.403
PB101C	PB101	13828208.48	3201307.665

Notes:

1 - Station Coordinates are State Plane coordinates based on North American Datum (NAD) 83 for Texas, South Central.

Table 3
Sediment Probing Results

Station ID	Water Depth (cm)	Depth of Refusal (cm)	Sediment Thickness (cm)	Sediment Type	Comments
PBUC001	191	208	17	Clay	not soft, firm clay
PBUC002	181	231	50	Clay	medium stiff; sample collected
PBUC003	171	129	58	Silt	fine grained, some sand; sheen
PBUC004	144	179	35	Gravel	rocky on top, clay underneath
PBUC005	52	76	24	Clay	stiff penetration
PBUC006	52	73	21	Clay	stiff penetration
PBUC007	123	137	14	Clay	med. Stiff; sheen
PBUC008	173	189	16	Clay	stiff penetration
PBUC009	67	96	29	Clay	medium stiff
PBUC010	65	78	13	Clay	medium stiff to stiff
PBUC011	55	75	20	Clay	medium stiff
PBUC012	41	173	132	Silt	fine grained, sheen; sample collected
PBUC013	97	187	90	Silt	fine grained, little sand
PBUC014	73	90	17	Clay	stiff penetration
PBUC015	48	68	20	Clay	stiff penetration, some sand
PBUC016	175	259	84	Silt	fine grained, soft 0-26 cm sand 26 - 58 cm; sample collected; sheen
PBUC017	64	80	16	Clay	stiff penetration
PBUC018	37	55	18	Clay	stiff penetration
PBUC019	246	296	50	Sandy	sandy 0-30 cm, clay 30-50 cm
PBUC020	73	93	20	Clay	stiff
PBUC021	86	113	27	Clay	stiff
PBUC022	219	227	8	Clay	with gravel; hard penetration
PBUC023	86	102	16	Clay	stiff
PBUC024	54	67	13	Clay	medium stiff
PBUC025	190	263	73	Sandy	with gravel
PBUC026	190	245	55	Sandy	sheen; sample collected
PBUC027	158	178	20	Clay	medium stiff to stiff
PBUC028	49	66	17	Clay	medium stiff to stiff
PBUC029	185	302	117	Sandy	with gravel
PBUC030	161	180	19	Clay	stiff, medium stiff
PBUC031	42	65	23	Clay	medium stiff
PBUC032	157	207	50	Silt	fine grained with sand and gravel; sheen; sample collected
PBUC033	80	91	11	Clay	medium stiff to stiff; sheen
PBUC034	145	163	18	Clay	with sand, medium stiff to stiff
PBUC035	160	252	92	Sandy	soft with gravel
PBUC036	45	76	31	Clay	medium stiff
PBUC037	56	110	54	Sandy	soft with gravel
PBUC038	96	116	20	Clay	stiff

Table 3
Sediment Probing Results

Station ID	Water Depth (cm)	Depth of Refusal (cm)	Sediment Thickness (cm)	Sediment Type	Comments
PBUC039	59	85	26	Silt	fine grained, sheen, sample collected
PBUC040	100	126	26	Clay	medium stiff
PBUC041	91	104	13	Clay	stiff clay
PBUC042	96	357	261	Silt	fine grained, sheen; sample collected
PBUC043	74	98	24	Clay	soft to medium stiff
PBUC044	180	280	100	Silt	fine grained with gravel; sheen
PBUC045	73	110	37	Clay	medium stiff
PBUC046	76	89	13	Clay	medium stiff
PBUC047	168	213	45	Gravel	--
PBUC048	106	166	60	Gravel	rocky/muddy on top, sandy below
PBUC049	176	226	50	Gravel	gravel on top, clay with sand below
PBUC050	83	146	63	Clay	--
PBUC051	116	189	73	Gravel	rocky on top, medium stiff clay below
PBUC052	123	139	16	Clay	stiff
PBUC053	140	169	29	Gravel	gravel on top, muddy below
PBUC054	148	284	136	Gravel	rocky top, sandy silt below
PBUC055	106	150	44	Sandy	sample collected
PBUC056	259	317	58	Clay	medium stiff
PBUC057	155	207	52	Gravel	rocky on top, clay underneath
PBUC058	148	237	89	Clay	medium stiff
PBUC059	178	199	21	Gravel	rocky on top, sandy below
PBUC060	212	235	23	Clay	stiff
PBUC061	154	195	41	Clay	medium stiff
PBUC062	112	170	58	Gravel	rocky on top, sandy clay below; sheen
PBUC063	110	133	23	Clay	stiff
PBUC064	145	184	39	Sandy	--
PBUC065	145	211	66	Sandy	rocky, mud below sand; sheen
PBUC066	111	158	47	Clay	with sand, medium stiff
PBUC067	209	220	11	Sandy	very hard
PBUC068	110	140	30	Clay	medium stiff
PBUC069	99	222	123	Clay	medium stiff, 1 cm gravel layer on top
PBUC070	101	149	48	Silt	fine grained, some rocks on surface; sheen; sample collected
PBUC071	57	166	109	Silt	fine grained, sheen
PBUC072	86	157	71	Silt	fine grained, few sand/gravel, upper surface medium stiff clay
PBUC073	39	66	27	Clay	medium stiff; sheen
PBUC074	58	91	33	Clay	medium stiff to stiff

Table 3
Sediment Probing Results

Station ID	Water Depth (cm)	Depth of Refusal (cm)	Sediment Thickness (cm)	Sediment Type	Comments
PBUC075	88	127	39	Gravel	sandy, soft to medium, crust on top
PBUC076	60	167	107	Silt	fine grained, sheen; sample collected
PBUC077	42	88	46	Clay	medium stiff
PBUC078	75	300	225	Sandy	soft to medium
PBUC079	90	136	46	Clay	soft to medium
PBUC080	78	330	252	Silt	fine grained, sheen; sample collected
PBUC081	88	264	176	Silt	fine grained, muddy with sand and gravel; sheen
PBUC082	51	127	76	Clay	soft to medium stiff
PBUC083	25	61	36	Clay	soft to medium stiff
PBUC084	50	116	66	Clay	soft to medium stiff
PBUC085	41	136	95	Clay	soft to medium stiff
PBUC086	67	139	72	Clay	soft to medium stiff
PBUC087	53	147	94	Silt	fine grained
PBUC088	40	272	232	Silt	fine grained; sample collected
PBUC089	140	146	6	Gravel	medium stiff, surrounded by rocks
PBUC090	40	64	24	Gravel	medium dense
PBUC091	67	78	11	Gravel	medium dense to dense
PBUC092	52	60	8	Gravel	very hard
PBUC093	55	93	38	Gravel	medium dense
PBUC094	83	144	61	Gravel	--
PBUC095	60	120	60	Sandy	loose to medium
PBUC096	134	158	24	Clay	medium stiff
PBUC097	102	123	21	Sandy	loose with clay
PBUC098	81	101	20	Gravel	loose clayey sand between large rocks
PBUC099	130	179	49	Gravel	--
PBUC100	85	132	47	Sandy	clayey sand with gravel, loose to medium dense; sheen
PBUC101	102	146	44	Gravel	soft clay between large rocks; sheen
PBUC102	111	150	39	Gravel	loose; sheen
PBUC103	116	162	46	Clay	sandy clay with gravel, medium stiff
PBUC104	114	122	8	Gravel	medium dense, with sand
PBUC105	57	59	2	Sandy	with gravel over rocks, loose; sheen
PBUC106	56	91	35	Sandy	loose; sheen
PBUC107	102	122	20	Sandy	loose to medium dense; sheen
PBUC108	103	117	14	Sandy	medium dense
PBUC109	67	106	39	Sandy	loose sand between rocks and gravel
PBUC110	87	127	40	Clay	soft, with sand and gravel, surrounded by large rocks; sheen

Table 3
Sediment Probing Results

Station ID	Water Depth (cm)	Depth of Refusal (cm)	Sediment Thickness (cm)	Sediment Type	Comments
PBUC111	118	146	28	Clay	soft to medium dense
PBUC112	67	133	66	Gravel	soft clay between rocks; sheen
PBUC113	120	217	97	Sandy	gravel sand over clayey sand; soft to medium dense
PBUC114	121	156	35	Sandy	with clay and gravel; medium stiff

Notes:

cm - centimeter

Table 4
PCB Field Assay Results

Patrick Bayou Station ID	Temporary Field Sample ID	PCB Aroclor¹ (µg/kg)
PB066.1	PBUC088	3,370
PB067	PBUC080	5,220
PB068	PBUC076	12,400
PB069.1	PBUC070	5,770
PB070A	PBUC042	5,320
PB071	PBUC039	1,300
PB072	PBUC032	1,810
PB074.1	PBUC026	883
PB075	PBUC016	1,050
PB076.1	PBUC012	10,300
PB078	PBUC002	1,200
PB081.1	PBUC053	27,800
PB082	PBUC055	13,400
PB086	PBUC065	2,850
PB087	PBUC066	1,980

Notes:

1 - PCB Aroclor results were rounded to three significant figures.

µg/kg - micrograms per kilogram

Table 5
Patrick Bayou Channel Sediment Analytical Results

Patrick Bayou Station ID	PB068	PB069.1	PB070A	PB076.1	PB081.1	PB081.1	PB082
Patrick Bayou Sample ID	PB068-1SS010-20110804-N	PB069-1SS008-20110804-N	PB070-1SS010-20110802-N	PB076-1SS010-20110802-N	PB081-1SS010-20110803-D	PB081-1SS010-20110803-N	PB082-1SS010-20110803-N
Temporary Field Sample ID	PBUC076-1SS010-20110804-N	PBUC070-1SS008-20110804-N	PBUC042-1SS010-20110802-N	PBUC012-1SS010-20110802-N	PBUC053-1SS010-20110803-D	PBUC053-1SS010-20110803-N	PBUC055-1SS010-20110803-N
Sample Date	8/4/2011	8/4/2011	8/2/2011	8/2/2011	8/3/2011	8/3/2011	8/3/2011
Depth	0 - 10 cm	0 - 8 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm
Sample Type	N	N	N	N	FD	N	N
Chemical							
Conventional Parameters (pct)							
Moisture, percent	54.2	46.1	60.9	40.6	28.2	26.4	44.9
Polycyclic Aromatic Hydrocarbons (µg/kg)							
2-Methylnaphthalene	1,710	81.1	43.4	63	53,000	41,000	44.8
Acenaphthene	8,800	202	113	293	23,700	19,800	548 J
Acenaphthylene	7,240	1,310	302	332	39,400	32,800	1,460 J
Anthracene	6,690	859	239	896	31,800	23,600	1,190 J
Benzo(a)anthracene	1,930	1,190	384	2,050	5,870	5,060	508 J
Benzo(a)pyrene	1,570	1,060	551 J	2,070	3,100	2,880	349 J
Benzo(b)fluoranthene	1,300	973 J	675 J	2,400	1,400	1,180	254 J
Benzo(e)pyrene	1,400	771	527	1,690	1,840	1,700	287 J
Benzo(g,h,i)perylene	802	650	510 J	1,510	830	819	182 J
Benzo(j,k)fluoranthene	959	846	513 J	2,020	1,230	1,220	193 J
C1-Chrysenes	1,520	605	279	721	3,320	2,890	480 J
C1-Fluoranthenes/Pyrenes	9,530	2,450	743	2,570	26,200	22,000	2,260 J
C1-Fluorenes	7,200	428	249	539	23,600	19,500	1,310 J
C1-Naphthalenes	6,480	107	76	79.2	74,400	58,700	123
C1-Phenanthrenes/Anthracenes	11,300	1,060	906	1,030	36,700	29,100	1,190 J
C2-Chrysenes	930	359	212	384	1,310	1,160	434 J
C2-Fluorenes	7,690	732	481	1,230	10,400	9,020	1,160 J
C2-Naphthalenes	10,200	411	542	404	36,800	31,200	1,040 J
C2-Phenanthrenes/Anthracenes	8,740	1,320	848	1,470	11,600	9,350	1,790 J
C3-Chrysenes	913	316	231	326	924	699	380 J
C3-Fluorenes	6,740	980	531	1,080	5,790	4,620	1,160 J
C3-Naphthalenes	19,000	1,440	800	1,120	76,000	64,000	3,560 J
C3-Phenanthrenes/Anthracenes	6,430	1,210	482	836	5,450	4,190	1,580 J
C4-Chrysenes	107 U	23.4 U	192	188	108 U	102 U	292
C4-Naphthalenes	6,960	414	611	911	7,250	5,860	835 J
C4-Phenanthrenes/Anthracenes	4,070	860	253	361	2,900	2,420	942 J
Chrysene	2,260	1,300	696 J	2,830	5,580	4,810	622 J
Dibenzo(a,c,h)anthracene	176	165	116	413	227	202	34.8 J
Fluoranthene	5,710	2,650	1,150	5,610	16,800	13,600	1,410 J
Fluorene	10,400	214	94	132	43,200	33,900	78.3
Indeno(1,2,3-c,d)pyrene	749	615	505 J	1,740	709	636	136
Naphthalene	6,660	102	70	93.3	96,300	73,800	114
Perylene	278	275	155	548	367	339	61.2
Phenanthrene	20,000	1,230	541 J	1,740	115,000	89,000	284 J
Pyrene	12,700	3,420	1,240	5,790	37,600	30,400	2,700 J
Total 19 PAH (U = 1/2)	91,300	17,900	8,420 J	32,200	478,000	377,000	10,500 J
Total 35 PAH (U = 1/2)	199,000	30,600	15,900 J	45,500	801,000	642,000	29,000 J
PCB Aroclors (µg/kg)							
Aroclor 1260	1,320 U	108 U	37.2 U	47.2 U	1,530 U	1,490 U	251 U

Table 5
Patrick Bayou Channel Sediment Analytical Results

Patrick Bayou Station ID	PB068	PB069.1	PB070A	PB076.1	PB081.1	PB081.1	PB082
Patrick Bayou Sample ID	PB068-1SS010-20110804-N	PB069-1SS008-20110804-N	PB070-1SS010-20110802-N	PB076-1SS010-20110802-N	PB081-1SS010-20110803-D	PB081-1SS010-20110803-N	PB082-1SS010-20110803-N
Temporary Field Sample ID	PBUC076-1SS010-20110804-N	PBUC070-1SS008-20110804-N	PBUC042-1SS010-20110802-N	PBUC012-1SS010-20110802-N	PBUC053-1SS010-20110803-D	PBUC053-1SS010-20110803-N	PBUC055-1SS010-20110803-N
Sample Date	8/4/2011	8/4/2011	8/2/2011	8/2/2011	8/3/2011	8/3/2011	8/3/2011
Depth	0 - 10 cm	0 - 8 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm
Sample Type	N	N	N	N	FD	N	N
Chemical							
Aroclor 1254	15,700	2,630	604	1,010	20,500 J	23,200 J	4,300
Aroclor 1268	1,320 U	108 U	37.2 U	47.2 U	1,530 U	1,490 U	251 U
Aroclor 1221	1,320 U	108 U	37.2 U	47.2 U	1,530 U	1,490 U	251 U
Aroclor 1232	1,320 U	108 U	37.2 U	47.2 U	1,530 U	1,490 U	251 U
Aroclor 1248	56,000	6,440	1,720	2,830	80,600 J	83,600 J	15,000
Aroclor 1016	1,320 U	108 U	37.2 U	47.2 U	1,530 U	1,490 U	251 U
Aroclor 1262	1,320 U	108 U	37.2 U	47.2 U	1,530 U	1,490 U	251 U
Aroclor 1242	1,320 U	108 U	37.2 U	47.2 U	1,530 U	1,490 U	251 U
Total PCB Aroclors (U = 1/2)	76,300	9,450	2,450	4,010	106,000 J	112,000 J	20,200

Notes:

Bold - Detected result

J - Estimated value

U - Compound analyzed, but not detected above detection limit

N - Normal Sample

FD - Field Duplicate

cm - centimeters

pct - percent

µg/kg - micrograms per kilogram

Table 6
Total PCB Aroclor Concentrations in Channel Sediment Samples

Patrick Bayou Station ID	Field Assay Total PCB Aroclor (µg/kg)	Laboratory Total PCB Aroclor (µg/kg)
PB068	12,400	76,300
PB069.1	5,770	9,450
PB070_A	5,320	2,450
PB076.1	10,300	4,010
PB081.1	27,800	112,000
PB081.1 Dup	NA	106,000
PB082	13,400	20,200

Notes:

Dup - duplicate

µg/kg - micrograms per kilogram

NA - not applicable

PCB - polychlorinated biphenyl

Table 7
Culvert Sediment Sample Analytical Results

Patrick Bayou Station ID	PB119.1	PB119.1	PB119.1	PB119.2	PB119.3	PB119.3	PB119.4	PB119.5
Patrick Bayou Sample ID	PB119.1-1SC030-20110805-N	PB119.1-1SC060-20110805-N	PB119.1-1SC090-20110805-N	PB119.2-1SS010-20110805-N	PB119.3-1SS010-20110805-D	PB119.3-1SS010-20110805-N	PB119.4-1SS010-20110805-N	PB119.5-1SS010-20110805-N
Temporary Field Sample ID	PBUCCLA-1SC030-20110805-N	PBUCCLA-1SC060-20110805-N	PBUCCLA-1SC090-20110805-N	PBUCCLB-1SS010-20110805-N	PBUCCLC-1SS010-20110805-D	PBUCCLC-1SS010-20110805-N	PBUCCLD-1SS010-20110805-N	PBUCCLE-1SS010-20110805-N
Sample Date	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011
Depth	0 - 30 cm	30 - 60 cm	60 - 90 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm
Sample Type	N	N	N	N	FD	N	N	N
Chemical								
Conventional Parameters (None)								
Specific gravity	2.61	2.57	2.54	2.64	--	2.63	2.65	2.62
Conventional Parameters (pct)								
Moisture, percent	17.7	23.5	23.9	32.3	22	21	19.1	32.1
Total organic carbon	1.14	0.382	0.309	1.07	--	0.921	0.409	0.962
Grain Size (pct)								
Cobbles	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U
Fines (silt + clay)	1.73	1.85	3.77	0.99	--	0.48	0.55	1.75 --
Gravel, Coarse	56.2 J	5.68 J	0.1 UJ	36.5 J	--	63.5 J	42.5 J	0.1 UJ
Gravel, Fine	10.4 J	33.5 J	38.2 J	20.5 J	--	13.5 J	16.1 J	3.96 J
Sand, Coarse	8.28 J	32.5 J	29 J	16.4 J	--	5.98 J	12.4 J	13.1 J
Sand, Fine	7.24	6.54	8.5	6.42	--	4.77	6.7	32.8
Sand, Medium	16.1	19.9	20.5	19.2	--	11.8	21.7	48.4
Metals (mg/kg)								
Lead	19.4 J	16.3 J	23.5 J	17.6 J	18.5 J	11.6 J	102 J	42 J
Mercury	0.037	0.061	0.051	0.015 J	0.021	0.019	0.01 J	0.022
Nickel	7.97 J	9.41 J	11.5 J	8.82 J	6.94 J	5.27 J	5.62 J	6.14 J
Arsenic	5.54	2.53	3.7	6.32	3.24	3.2	4.98	3.22
Cadmium	0.239	0.088	0.112	0.215	0.162	0.177	0.139	0.161
Chromium	34.4 J	13.7 J	17.4 J	25.1 J	47.8 J	15.2 J	12.7 J	12.4 J
Copper	14.2 J	6.17 J	8.21 J	19.6 J	14.4 J	8.14 J	9.66 J	15 J
Zinc	118 J	32.7 J	38 J	318 J	73.4 J	65.6 J	47.9 J	74.4 J
Selenium	0.296 U	0.378 J	0.175 U	0.464	0.242 U	0.312 U	0.256 U	0.223 U
Polycyclic Aromatic Hydrocarbons (µg/kg)								
2-Methylnaphthalene	6.01 J	9.08	6.15	11.6	9.42 U	10.3 U	6.64 J	14.1 J
Acenaphthene	14.2	7.58	9.52	172	7.26 J	13.7	49.3	76.2
Acenaphthylene	42.4	57.9	34.8	45.9	21.4	31.5	36.4	106
Anthracene	83.6	56.8	62.2	672	56.3	154	289	737 J
Benzo(a)anthracene	789	148 J	390	2,500	441	971	1,080	4,160
Benzo(a)pyrene	852	174 J	346	2,410	555	1,010	1,010	4,380
Benzo(b)fluoranthene	1,270	243 J	412	2,410	641	1,090	1,110	4,690
Benzo(e)pyrene	905	183	301	1,720	495	816	802	3,310
Benzo(g,h,i)perylene	876	180 J	282	1,600	377	691	664	2,710 J
Benzo(j,k)fluoranthene	1,080	200 J	375	2,150	532	1,010	973	3,850
C1-Chrysenes	258	84.5	119	531	203	333	336	1,340
C1-Fluoranthenes/Pyrenes	430	152	201	1,020	400	676	735	2,770
C1-Fluorenes	10.2	21.7	36	44.7	15	19.3	23.7	70.6
C1-Naphthalenes	7.07 J	9.36	6.44	15.8	5.39 J	5.63 J	9.47 J	19.1
C1-Phenanthrenes/Anthracenes	200	59.4	84.7	508	128	261	320	1,080
C2-Chrysenes	125	68.9	63.1	374	146	186	162	614
C2-Fluorenes	24.2	59.3	72.5	54.8	28.3	33.9	31.7	84
C2-Naphthalenes	10.1	16.2	11.6	44.1	15.3	14.4	14.8	31.2
C2-Phenanthrenes/Anthracenes	100	84.8	79.4	238	89	146	154	498 J
C3-Chrysenes	160	90.9	93.7	395	220	211	198	578
C3-Fluorenes	166	81.2	103	188	107	153	134	442
C3-Naphthalenes	10.6	23.5	20	50.5	18.4	15.1	16.3	28.9

Table 7
Culvert Sediment Sample Analytical Results

Patrick Bayou Station ID	PB119.1	PB119.1	PB119.1	PB119.2	PB119.3	PB119.3	PB119.4	PB119.5
Patrick Bayou Sample ID	PB119.1-1SC030-20110805-N	PB119.1-1SC060-20110805-N	PB119.1-1SC090-20110805-N	PB119.2-1SS010-20110805-N	PB119.3-1SS010-20110805-D	PB119.3-1SS010-20110805-N	PB119.4-1SS010-20110805-N	PB119.5-1SS010-20110805-N
Temporary Field Sample ID	PBUCCLA-1SC030-20110805-N	PBUCCLA-1SC060-20110805-N	PBUCCLA-1SC090-20110805-N	PBUCCLB-1SS010-20110805-N	PBUCCLC-1SS010-20110805-D	PBUCCLC-1SS010-20110805-N	PBUCCLD-1SS010-20110805-N	PBUCCLE-1SS010-20110805-N
Sample Date	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011
Depth	0 - 30 cm	30 - 60 cm	60 - 90 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm
Sample Type	N	N	N	N	FD	N	N	N
Chemical								
C3-Phenanthrenes/Anthracenes	53.6	65.8	50.8	152	75.4	81.6	76.8	240
C4-Chrysenes	106	63.7	75.6	242	166	138	116	302
C4-Naphthalenes	10.1	62.6	44.6	89.6	19.3	26.5	22.4	33
C4-Phenanthrenes/Anthracenes	29.2	25.4	23.6	103	55.8	56.9	53.6	140
Chrysene	1,360	221 J	493	2,780	781	1,380	1,390	5,250
Dibenzo(a,c,h)anthracene	195	44.5	75.4	497	112	197	202	792
Fluoranthene	2,580	320 J	888	6,240	1,250	2,430	2,740	9,810
Fluorene	23	8.79	11.7	207	21.1	33.6	69.6	189 J
Indeno(1,2,3-c,d)pyrene	944	179 J	314	1,870	427	782	754	3080
Naphthalene	7.92 J	6	11.3	10.6 U	9.42 U	10.3 U	13.4	23.7
Perylene	234	85.4	183	767	123	242	248	1,100
Phenanthrene	951	104 J	272	3,250	386	815	1,220	3,920 J
Pyrene	2,050	309 J	756	5,060	1,050	1,940	2,150	7,720
Total 19 PAH (U = 1/2)	14,300 J	2,540 J	5,220	34,400	7,290 J	13,600	14,800 J	55,900 J
Total 35 PAH (U = 1/2)	16,000 J	3,510 J	6,310	38,400	8,980 J	16,000 J	17,200 J	64,200 J
PCB Congeners (ng/kg)								
PCB-001	1.18 U	3.49 U	3.54 U	3.24 U	1.92 U	1.67 U	3.26 U	1.93 U
PCB-002	1.43 U	3.83 U	3.59 U	3.43 U	1.97 U	1.71 U	3.4 U	11.1 J
PCB-003	4.08 U	3.72 U	3.22 U	3.79 U	5.08 U	1.55 U	4.68 U	2.7 U
PCB-004	8.72 U	57.3 U	56.1 U	63.7	22.2 J	16.4	46.8	69 J
PCB-005	3.09 U	8.5 U	7.59 U	0.143 U	2.69 U	2.09 U	1.9	6.33 U
PCB-006	9.45 J	7.16 U	6.4 U	44.4	11.7 J	8.59	36	5.33 U
PCB-007	2.7 U	7.43 U	6.63 U	7.03	2.35 U	1.83 U	6.79	5.53 U
PCB-008	32.8 J	10.7 U	26.7 J	209	51.9	45.6	180	127
PCB-009	2.79 U	7.66 U	6.84 U	8.28	2.42 U	3.65 J	6.61	5.7 U
PCB-010	5.34 U	28.3 U	34.9 U	3.94	4.24 U	2.46 U	2.9	9.45 U
PCB-011	46.9 U	19.7 U	24.5 U	43 U	56.5 U	61.4	32.5 U	207
PCB-012/013	2.75 U	7.57 U	6.76 U	16.2	7.15	6.53	13.4	5.63 U
PCB-014	2.78 U	7.63 U	6.81 U	0.247 J	2.41 U	1.88 U	0.314 U	5.68 U
PCB-015	40.7 J	24.3 J	36.2	79.6	54.1	48.2	97.4	102
PCB-016	34.5	6.93	13.8 J	163 J	52.3	36.3	142	113
PCB-017	58.6	12.9	18.9 J	254 J	83.2	67.9	198	162
PCB-018/030	86.7	18.6 J	27.4 J	405 J	129	105	331	268
PCB-019	19.5	6.64	4.47 U	47.6	20	17.3	43.7	30.5
PCB-020/028	255	59.9	61.6 J	939 J	409	290	732	591
PCB-021/033	78.2	16.8 J	24.5 J	311 J	131	92.9	281	279
PCB-022	71.2	15.1	16.3 J	265 J	119	87.8	222	217
PCB-023	0.9 U	2.45 U	3.12 UJ	0.889 J	1.43 U	1.27 U	0.617 J	1.77 U
PCB-024	1.03 U	2.8 U	3.57 UJ	0.166 UJ	1.64 U	1.46 U	0.258 U	2.03 U
PCB-025	19.1	4.74 J	4.62 J	61.5 J	21.4	17.3	48.8	39
PCB-026/029	35	7.14	11.5 J	118 J	46	36.3	101	90
PCB-027	11.4 J	2.93	2.76 J	40.7 J	11.3	12.4	35.3	28.2
PCB-031	157	28.6	37.6 J	598 J	231	186	488	442
PCB-032	45.3	8.25	14.3 J	130 J	69.7	51.2	105	115
PCB-034	1.26 J	2.56 U	3.26 UJ	5.13 J	2.33	1.41	3.32	3.11 J
PCB-035	6.28	3.71 U	4.24 UJ	11.9 J	3.01 U	6.72	8.38	22.4

Table 7
Culvert Sediment Sample Analytical Results

Patrick Bayou Station ID	PB119.1		PB119.1		PB119.1		PB119.2		PB119.3		PB119.3		PB119.4		PB119.5	
Patrick Bayou Sample ID	PB119.1-1SC030-20110805-N		PB119.1-1SC060-20110805-N		PB119.1-1SC090-20110805-N		PB119.2-1SS010-20110805-N		PB119.3-1SS010-20110805-D		PB119.3-1SS010-20110805-N		PB119.4-1SS010-20110805-N		PB119.5-1SS010-20110805-N	
Temporary Field Sample ID	PBUCCLA-1SC030-20110805-N		PBUCCLA-1SC060-20110805-N		PBUCCLA-1SC090-20110805-N		PBUCCLB-1SS010-20110805-N		PBUCCLC-1SS010-20110805-D		PBUCCLC-1SS010-20110805-N		PBUCCLD-1SS010-20110805-N		PBUCCLE-1SS010-20110805-N	
Sample Date	8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011	
Depth	0 - 30 cm		30 - 60 cm		60 - 90 cm		0 - 10 cm		0 - 10 cm		0 - 10 cm		0 - 10 cm		0 - 10 cm	
Sample Type	N		N		N		N		FD		N		N		N	
Chemical																
PCB-036	1.74	U	3.47	U	3.96	UJ	0.594	J	2.81	U	2.33	U	0.699	U	2.79	U
PCB-037	96.3		23.5		21	J	197	J	120		82.6		154		186	
PCB-038	1.75	U	3.49	U	3.99	UJ	0.126	UJ	2.83	U	2.34	U	0.706	U	2.8	U
PCB-039	1.66	U	3.29	U	3.76	UJ	5.26	J	2.67	U	2.21	U	0.675	U	2.65	U
PCB-040/071	120		30.6	J	34.8		226	J	97.3	J	82.3	J	145	J	178	
PCB-041	18	J	6.96	UJ	11.1	U	22.2	J	19.7	J	13.3	J	11.8	J	27.7	
PCB-042	76		20.5	J	21.4	J	165	J	63.7	J	54.3	J	99	J	109	
PCB-043	6.49	J	6.28	UJ	9.97	U	5.14	J	5.52	J	4.94	J	3.83	J	8.18	J
PCB-044/047/065	338		111	J	117		560	J	260	J	214	J	369	J	453	
PCB-045/051	56.7		20.8	J	17.9	J	72.2	J	36.3	J	36.6	J	49.7	J	65.9	J
PCB-046	18.5		6.8	J	8.3	U	32.8	J	12.3	J	13.8	J	22.2	J	25.4	
PCB-048	38.6		10	J	12	J	59.8	J	34	J	27.1	J	39.5	J	53.6	
PCB-049/069	193		53.8	J	66	J	1,070	J	186	J	157	J	618	J	297	
PCB-050/053	49.2		18.1	J	18	J	71.9	J	31.3	J	26.1	J	41.6	J	57.5	
PCB-052	490		166	J	253		618	J	355	J	317	J	462	J	672	
PCB-054	1.09	U	3.96	U	3.97	U	1.38		1.75	U	1.95	U	1.07		2.33	U
PCB-055	3.6	U	5.65	UJ	7.32	U	0.289	UJ	3.09	UJ	2.94	UJ	2.6	UJ	4.28	U
PCB-056	118		34.7	J	38.6	J	203	J	110	J	77	J	103	J	167	
PCB-057	3.28	U	12.8	J	15.3	J	0.271	UJ	13.1	J	2.68	UJ	2.44	UJ	3.89	U
PCB-058	3.26	U	5.11	UJ	6.61	U	20.1	J	2.79	UJ	2.66	UJ	2.21	J	3.87	U
PCB-059/062/075	32.1		4.42	UJ	9.41		36.2	J	21.6	J	19.4	J	25.3	J	34.9	
PCB-060	79.5		44	J	26	J	76.2	J	46.3	J	34.7	J	36.8	J	60.1	
PCB-061/070/074/076	543		244	J	279		832	J	463	J	362	J	488	J	781	
PCB-063	12.5	J	9.33	J	6.63	U	19.6	J	12.2	J	8.84	J	9.56	J	16.7	
PCB-064	145		46.3	J	45.6		159	J	108	J	86.7	J	119	J	160	
PCB-066	453		228	J	142		618	J	289	J	210	J	296	J	458	
PCB-067	8.68	J	4.89	UJ	6.34	U	16.2	J	7.54	J	5.47	J	7.58	J	15.1	
PCB-068	3.01	U	4.72	UJ	6.11	U	8.23	J	2.58	UJ	2.46	UJ	4.19	J	5	J
PCB-072	6.5	J	5.11	UJ	6.61	U	11.2	J	4.8	J	4.64	J	5.3	J	7.62	J
PCB-073	1.25	U	4.47	UJ	7.1	U	0.111	UJ	1.6	UJ	1.75	UJ	0.28	UJ	2.86	U
PCB-077	50.4		15.4	J	17.8		57.4	J	34.7	J	29.9	J	25.9	J	54	
PCB-078	3.37	U	5.29	UJ	6.85	U	0.268	UJ	2.89	UJ	2.76	UJ	2.41	UJ	4.01	U
PCB-079	12.7	J	4.53	UJ	5.87	U	6.87	J	4.14	J	2.36	UJ	2.06	UJ	7.63	
PCB-080	3.23	U	5.07	UJ	6.56	U	2.45	J	2.77	UJ	2.64	UJ	2.26	UJ	3.84	U
PCB-081	3.74	U	5.27	U	7.12	U	1.73	J	3.04	U	3.04	U	2.15	U	4.11	U
PCB-082	77.1		28.5		54.9	J	44.9	J	45.5		44.3		37.6	J	83.9	
PCB-083	49.7		19.2	J	26.4	J	0.286	UJ	27.8		22.2	J	19.2	J	46	
PCB-084	212		84.5		122		141	J	112		109		112	J	200	
PCB-085/116/117	193		84.7		89.9	J	72.5	J	83.2		66.6		54.6	J	121	
PCB-086/087/097/108/119/125	306		192		300		281	J	294		251		238	J	475	
PCB-088/091	137		52.4		65.8		76.2	J	56.5		50.7		50.1	J	102	
PCB-089	7.63		10.5	U	18.5	U	4.33	J	4.22	J	5.7	U	2.85	J	8.16	
PCB-090/101/113	795		281		495		386	J	411		346		313	J	686	
PCB-092	162		70.2		92.5		76.4	J	81.8		67.8		57.1	J	113	
PCB-093/100	6.64	J	9.06	U	15.9	U	0.248	UJ	7.22	J	4.9	U	3.71	J	4.4	J
PCB-094	4.27	J	9.66	U	16.9	U	2.93	J	3.64	U	5.22	U	2.03	J	4.64	U

Table 7
Culvert Sediment Sample Analytical Results

Patrick Bayou Station ID	PB119.1	PB119.1	PB119.1	PB119.2	PB119.3	PB119.3	PB119.4	PB119.5
Patrick Bayou Sample ID	PB119.1-1SC030-20110805-N	PB119.1-1SC060-20110805-N	PB119.1-1SC090-20110805-N	PB119.2-1SS010-20110805-N	PB119.3-1SS010-20110805-D	PB119.3-1SS010-20110805-N	PB119.4-1SS010-20110805-N	PB119.5-1SS010-20110805-N
Temporary Field Sample ID	PBUCCLA-1SC030-20110805-N	PBUCCLA-1SC060-20110805-N	PBUCCLA-1SC090-20110805-N	PBUCCLB-1SS010-20110805-N	PBUCCLC-1SS010-20110805-D	PBUCCLC-1SS010-20110805-N	PBUCCLD-1SS010-20110805-N	PBUCCLE-1SS010-20110805-N
Sample Date	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011
Depth	0 - 30 cm	30 - 60 cm	60 - 90 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm
Sample Type	N	N	N	N	FD	N	N	N
Chemical								
PCB-095	606	264	365	379 J	322	281	299 J	483
PCB-096	4.95	4.96 U	7.38 U	3.13 J	2.36 U	3.31 U	2.12 J	4.94 J
PCB-098/102	20.9	9.19 U	16.1 U	17.7 J	13.5 J	12.3	10.3 J	23.4 J
PCB-099	486	214	210	19.2 J	204	165	135 J	354
PCB-103	6.05 J	8.38 U	14.7 U	6.35 J	3.73 J	4.53 U	3.47 J	6.52 J
PCB-104	1.56 U	5.65 U	8.33 U	3.41 U	2.48 U	2.82 U	0.99 UJ	3.05 U
PCB-105	371	154	211	149 J	180	140	121 J	276
PCB-106	6.29 U	7.66 U	11.4 U	0.39 UJ	3.71 U	3.79 U	0.569 UJ	4.99 U
PCB-107/124	32.1	9.55 J	17.7 J	14.9 J	16	15.2	13.2 J	26.9
PCB-109	85.5	31.6	37.1 J	34.8 J	38	31.9	26.9 J	57.7
PCB-110/115	1150	461	592	522 J	587	476	436 J	951
PCB-111	1.94 U	7.03 U	12.3 U	0.298 J	2.65 U	3.8 U	0.281 UJ	3.38 U
PCB-112	1.83 U	6.66 U	11.7 U	158 J	2.51 U	3.6 U	0.283 UJ	3.2 U
PCB-114	20.8	9.37	12.4 U	9 J	8.96 J	6.85 J	6.29 J	15.4 J
PCB-118	944	395	464	411 J	469	354	331 J	685
PCB-120	3.35	6.46 U	11.3 U	1.99 J	2.43 U	3.49 U	1.12 J	3.1 U
PCB-121	1.88 U	6.82 U	11.9 U	0.187 J	2.57 U	3.69 U	0.282 UJ	3.27 U
PCB-122	9 J	7.84 U	11.7 U	4.55 J	3.8 U	3.88 U	3.31 J	5.11 U
PCB-123	16.5 J	7.05 U	10.7 U	9.55 J	9.85 J	7.57 J	5.36 J	14.2 J
PCB-126	6.96 U	8.6 U	11.1 U	2.42 J	4.48 UJ	4.55 U	1.72 J	6.67 U
PCB-127	5.93 U	7.22 U	10.8 U	1.23 J	3.5 U	3.57 U	0.564 UJ	4.7 U
PCB-128/166	200	113	121	68.7	106	75.7	62.6	148
PCB-129/138/163	1350	896	1,080	415	613	476	423	963
PCB-130	160 U	51.5	63.7	27.4	43.9	31.2 J	25.9	56.4
PCB-131	167 U	10.2 U	21.9 U	0.343 U	7.33	7.81	5.83	15.8 J
PCB-132	339	222	275	0.318 U	180	147	138	277
PCB-133	145 U	15.7	19.1 U	0.538 J	7.62	6.56 J	5.48	7.34 J
PCB-134	159 U	32.8 J	37	23.6	29.7 J	18.8	22.2	46.3 J
PCB-135/151	274	253	319	96.8	136	113	104	216
PCB-136	98.3	76.5	93.2	37.4	52.8	42	35.2	86.2
PCB-137	142 U	38.7	18.7 U	19.8	30.2	25.3	16	46.3
PCB-139/140	140 U	8.58 U	18.4 U	4.68	3.55 U	7.82	6.63	7.21 U
PCB-141	148 U	144	190	59.4	90.2	72.2	70.6	127
PCB-142	156 U	9.54 U	20.5 U	135	3.95 U	5.01 U	0.502 U	8.02 U
PCB-143	149 U	9.13 U	19.6 U	8.23	3.78 U	4.79 U	0.481 U	7.67 U
PCB-144	32.5	37.5 J	46.1	11	19.4	15.8	12.4	30.4
PCB-145	2.67 U	4.82 U	6.81 U	0.15 J	2.16 U	3.29 U	0.285 U	4.05 U
PCB-146	177	131	155	57.7	85.2	62.4	57	131
PCB-147/149	655	609	587	286	351	256	300	529
PCB-148	3.43 U	6.2 U	8.75 U	0.247 U	2.77 U	4.22 U	0.367 U	5.21 U
PCB-150	2.59 U	4.68 U	6.61 U	0.669 J	2.1 U	3.19 U	0.271 U	3.93 U
PCB-152	2.52 U	4.54 U	6.42 U	0.285 J	2.04 U	3.1 U	0.277 U	3.82 U
PCB-153/168	802	659	798	276	414	301	289	596
PCB-154	12.6	10.2 J	15	4.53	5.56	4.78 J	3.02	9.6 J
PCB-155	2.3 U	4.06 U	6.25 U	1.03 J	1.81 U	2.46 U	0.484 U	2.87 U
PCB-156/157	154	80.7	113 J	42.9	69.8	53.3	43.1	103

Table 7
Culvert Sediment Sample Analytical Results

Patrick Bayou Station ID	PB119.1		PB119.1		PB119.1		PB119.2		PB119.3		PB119.3		PB119.4		PB119.5	
Patrick Bayou Sample ID	PB119.1-1SC030-20110805-N		PB119.1-1SC060-20110805-N		PB119.1-1SC090-20110805-N		PB119.2-1SS010-20110805-N		PB119.3-1SS010-20110805-D		PB119.3-1SS010-20110805-N		PB119.4-1SS010-20110805-N		PB119.5-1SS010-20110805-N	
Temporary Field Sample ID	PBUCCLA-1SC030-20110805-N		PBUCCLA-1SC060-20110805-N		PBUCCLA-1SC090-20110805-N		PBUCCLB-1SS010-20110805-N		PBUCCLC-1SS010-20110805-D		PBUCCLC-1SS010-20110805-N		PBUCCLD-1SS010-20110805-N		PBUCCLE-1SS010-20110805-N	
Sample Date	8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011	
Depth	0 - 30 cm		30 - 60 cm		60 - 90 cm		0 - 10 cm		0 - 10 cm		0 - 10 cm		0 - 10 cm		0 - 10 cm	
Sample Type	N		N		N		N		FD		N		N		N	
Chemical																
PCB-158	111	U	89.1		108		41.4		67.6		50.1		41.8		101	
PCB-159	3.89	U	7.85	U	9.06	U	0.509	U	4.58	U	4.37	U	0.665	U	5.8	U
PCB-160	115	U	7.07	U	15.2	U	0.244	U	2.93	U	3.71	U	0.387	U	5.94	U
PCB-161	106	U	6.5	U	13.9	U	0.218	U	2.69	U	3.41	U	0.346	U	5.46	U
PCB-162	10.1	J	7.37	U	8.51	U	3.67		4.3	U	4.11	U	1.26		5.45	U
PCB-164	116	U	68.7		69.5		29.7		45.2		32.3		31		72.6	
PCB-165	116	U	7.12	U	15.3	U	0.239	U	2.95	U	3.74	U	0.379	U	5.99	U
PCB-167	48.7		33.3		42.4	J	14.4		24.2		18.6		15.2		38.1	
PCB-169	3.93	U	7.06	U	7.12	U	1.03		3.92	U	3.8	U	0.793	J	6.9	U
PCB-170	192		304		356		70.1		95.3		88.3		98.7		195	
PCB-171/173	63.7		94.2		105		23.5		35.9		30.3		32.7		54.9	
PCB-172	40.5	J	66.1		58.7		14		22.7		17.2	J	19.5		41.1	
PCB-174	187		302		324		74.6		114		91.1		108		189	
PCB-175	9.06		14.6	J	19.3	J	0.0998	U	6.54	J	3.14	U	3.6		8.57	
PCB-176	21		35.8		40.7		7.74		14.2		12.7	J	9.52		21.1	
PCB-177	123		180		212		45.4		68.1		61.2		64.2		118	
PCB-178	44.3		75.1		70.7		0.105	U	28.3		20	J	18.2		40.2	
PCB-179	63.6		112		116		25.1		42.4		33.8		34.2		63.4	
PCB-180/193	444		668		671		156		4	U	191		225		417	
PCB-181	2.35	U	7.9	U	9.97	U	0.195	U	4.52	U	4.13	U	0.983	J	5.57	U
PCB-182	1.84	U	5.94	U	10.1	U	0.612	J	3.35	U	3.24	U	0.653	J	4.5	U
PCB-183/185	128		200		207		48.4		80.7		62.1		72.5		121	
PCB-184	1.27	U	4.08	U	6.9	U	1.19		2.29	U	2.22	U	0.848	J	3.09	U
PCB-186	1.43	U	4.61	U	7.8	U	0.0772	U	2.59	U	2.51	U	0.122	U	3.49	U
PCB-187	286		430		420		85		163		122		117		244	
PCB-188	1.61	U	5.24	U	8.68	U	0.279	J	2.8	U	2.5	U	0.289	J	3.63	U
PCB-189	9.46	J	14.5		17.1		2.42	J	4.71		4.34		3.24		9.56	J
PCB-190	41.2		59.6		75.6		14.6		20.3		20.1		21.1		42.7	
PCB-191	9.33	J	16.6	J	20.2	J	2.93		3.82	U	3.49	U	4.17		6.88	J
PCB-192	2.06	U	6.92	U	8.74	U	0.168	U	3.96	U	3.62	U	0.243	U	4.88	U
PCB-194	112		182		187	J	29.1		48.7	J	37.7		37.5		98.2	
PCB-195	42.6	J	68.5		77.1		11.7		21.7		16		17.8		42.6	
PCB-196	49.9		73.6		86.4		14.6		28.7	J	20.1		19		48.8	
PCB-197/200	18.2		29.6		27.9		5.48		12.1		4.31	U	7.88		17.6	
PCB-198/199	127		161		170		35		68.6		47.5		46.3		110	
PCB-201	13.6		25.7		21.9		4.58		11.6	J	6.89	J	6.25		12.8	J
PCB-202	25		34.8	J	29.1		7.83		18		10.1		10.3		19.2	
PCB-203	65		87.4		85.7		19.9		39.9		26		26.5		59.7	
PCB-204	3.08	U	8	U	11.3	U	0.0913	U	3.25	U	4.38	U	0.254	U	5.85	U
PCB-205	7.68		11.4		8.96	U	1.78		3.27	U	4.38	U	1.96	J	8.31	J
PCB-206	51.4		46.3		51.3		12.4		19	J	14.1		13.4		39.9	
PCB-207	13.3	J	19.8	J	17.6	J	2.38		6.79		4.58	U	2.64		10.6	
PCB-208	18		23.4	J	23.4		4.11		8.86		4.34	U	4.48		14.8	
PCB-209	85.1		254		268		10.2		20.6	J	15.4		11.9	J	33.8	
Total PCB Congener (U = 1/2)	17,100	J	11,100	J	12,900	J	14,200	J	10,300	J	8,380	J	11,300	J	17,400	J
Total PCB Congener TEQ 2005 (Mammal) (U = 1/2)	0.460	J	0.560	J	0.690	J	0.300	J	0.310	J	0.310	J	0.214	J	0.480	J

Table 7
Culvert Sediment Sample Analytical Results

Patrick Bayou Station ID	PB119.1	PB119.1	PB119.1	PB119.2	PB119.3	PB119.3	PB119.4	PB119.5
Patrick Bayou Sample ID	PB119.1-1SC030-20110805-N	PB119.1-1SC060-20110805-N	PB119.1-1SC090-20110805-N	PB119.2-1SS010-20110805-N	PB119.3-1SS010-20110805-D	PB119.3-1SS010-20110805-N	PB119.4-1SS010-20110805-N	PB119.5-1SS010-20110805-N
Temporary Field Sample ID	PBUCCLA-1SC030-20110805-N	PBUCCLA-1SC060-20110805-N	PBUCCLA-1SC090-20110805-N	PBUCCLB-1SS010-20110805-N	PBUCCLC-1SS010-20110805-D	PBUCCLC-1SS010-20110805-N	PBUCCLD-1SS010-20110805-N	PBUCCLE-1SS010-20110805-N
Sample Date	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011
Depth	0 - 30 cm	30 - 60 cm	60 - 90 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm
Sample Type	N	N	N	N	FD	N	N	N
Chemical								
Dioxin Furans (ng/kg)								
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	40.1	9.62	34.2	12.1	12.4	14.1	7.65	26.2
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	899	158	365	361	350	634	432	794
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	11.1	2.46	7.66	4.13	3.87	6.87	3.29	6.62
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	102	16.7	34.7	42.3	39.1	67	36.9	73.2
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	0.801J	0.184U	0.585J	0.464J	0.511U	0.429J	0.266J	0.546J
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	0.812U	0.401U	0.574U	0.651U	0.275U	0.546UJ	0.304U	0.532U
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.56J	0.308J	0.453J	0.649J	0.569J	1.94J	0.547J	1.72J
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.726U	1.18J	0.468U	0.533U	0.277U	0.789U	0.292U	0.546U
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	3.84	0.889J	1.23J	1.94J	1.97J	4.66	1.41J	3.35J
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	0.209U	0.255U	0.199U	0.299U	0.369U	0.293U	0.167U	0.245U
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	3.03	0.791J	1.09J	1.62J	1.96J	3.81J	1.45J	4.57
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	0.37U	1.03J	0.197U	0.436U	0.175U	0.387U	0.18U	0.425U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	1.13J	0.475U	0.309U	0.882U	0.82U	1.56J	0.627U	2.2J
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.876U	2.02J	0.758U	0.629U	0.3U	0.694U	0.354U	0.797U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.573U	6.06	0.877U	0.555U	0.176U	0.54U	0.344U	0.643U
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0.845U	0.797U	0.644U	0.73U	0.61U	0.793U	0.501U	1.04U
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	0.477J	0.169U	0.157U	0.525	0.417J	0.753	0.425J	1.3
Total Heptachlorodibenzofuran (HpCDF)	38.9	8.49	23.9	16.2	14	24.7	13.5	29.1J
Total Heptachlorodibenzo-p-dioxin (HpCDD)	405	55.8	110	192	102	182	111	241
Total Hexachlorodibenzofuran (HxCDF)	14.8J	26J	9.83J	9.25J	6.25	17.4J	5.79J	12.1J
Total Hexachlorodibenzo-p-dioxin (HxCDD)	60J	12.6J	14.1J	29.7J	19.7J	52.3J	20.1J	56J
Total Pentachlorodibenzofuran (PeCDF)	6.65J	67.8J	8.3J	5.46J	3.16J	5.57J	3.5J	9.2J
Total Pentachlorodibenzo-p-dioxin (PeCDD)	15.5J	6.22J	3.13J	10.6J	8.29J	17.1J	7.72J	21.9J
Total Tetrachlorodibenzofuran (TCDF)	5.45J	30.5J	4.8J	5.81J	3.16U	5.19J	3.49J	7.78J
Total Tetrachlorodibenzo-p-dioxin (TCDD)	5.22J	1.44	0.691	7.68J	2.16J	8.02J	2.96J	12.2J
Total Dioxin/Furan (U = 1/2)	1,070J	200J	447J	427J	412J	737J	485J	916J
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	4.14J	3.01J	1.33J	2.20J	1.94J	4.53J	1.75J	5.78J
Dioxin Furans and PCB Congeners (ng/kg)								
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 1/2)	4.60	3.56	2.02	2.50	2.25	4.84	1.97	6.25

Notes:
Bold - Detected result
J - Estimated value
U - Compound analyzed, but not detected above detection limit
UJ - Compound analyzed, but not detected above estimated detection limit
N - Normal Sample
FD - Field Duplicate
cm - centimeters
pct - percent
mg/kg - milligrams per kilogram
µg/kg - micrograms per kilogram
ng/kg - nanograms per kilogram

Table 8
Metal Concentrations in Culvert Sediment Samples

Metal	Concentration Range (mg/kg)
Lead	11.6 to 102
Mercury	0.01 to 0.061
Nickel	5.27 to 11.5
Arsenic	2.53 to 6.32
Cadmium	0.088 to 0.239
Chromium	12.4 to 47.8
Copper	6.17 to 19.6
Zinc	32.7 to 318
Selenium	less than 0.175 to 0.464

Notes:

mg/kg - milligrams per kilogram

PCB - polychlorinated biphenyl

Table 9
Surface Water Sample Results

Patrick Bayou Station ID	PB066B	PB080	PB080	PB082.1	PB101C
Patrick Bayou Sample ID	PB066-1SWMID-20110808-N	PB080-1SWMID-20110808-D	PB080-1SWMID-20110808-N	PB082-1SWMID-20110808-N	PB101-1SWMID-20110808-N
Temporary Field Sample ID	PB066-1SWMID-20110808-N	PBUC053D-1SWMID-20110808-D	PBUC053D-1SWMID-20110808-N	PBUC053U-1SWMID-20110808-N	PB101-1SWMID-20110808-N
Sample Date	8/8/2011	8/8/2011	8/8/2011	8/8/2011	8/8/2011
Sample Type	N	FD	N	N	N
Chemical					
Conventional Parameters (mg/l)					
Total suspended solids	19	26	22	16	16
Conventional Parameters (pct)					
Total organic carbon	0.0016	0.0016	0.0015	0.0017	0.002
PCB Congeners (ng/l)					
PCB-001	0.0539	0.07	0.0547	0.0626	0.00741 U
PCB-002	0.00263 U	0.00247 U	0.00366 U	0.00308 U	0.00268 U
PCB-003	0.00183 U	0.00633 J	0.00253 U	0.00231 U	0.0046 J
PCB-004	0.992	1.14	1.17	0.788	0.0379
PCB-005	0.0156 J	0.0229 J	0.0153	0.0123	0.00311 U
PCB-006	0.209	0.242	0.243	0.199	0.0209
PCB-007	0.0162	0.0228	0.0192 J	0.0183	0.00678 J
PCB-015	0.35	0.422	0.437	0.259	0.0253
PCB-008	0.749	0.965	0.89	0.647	0.0286 U
PCB-009	0.0549	0.0686	0.0626	0.049	0.00272 U
PCB-010	0.0803	0.0911	0.0831	0.0517	0.00364 J
PCB-011	0.0343 U	0.0416 U	0.0544 U	0.0382 U	0.0351 U
PCB-012/013	0.0227 J	0.0384	0.0272	0.0279	0.0121 J
PCB-014	0.00277 U	0.00265 U	0.00425 U	0.00364 U	0.00244 U
PCB-016	1.69	1.96	2.12	1.23	0.0418
PCB-017	2.44	2.9	3.04	1.79	0.0742
PCB-018/030	6.92	8.04	8.54	5.01	0.153
PCB-019	0.663	0.73	0.769	0.493	0.0283
PCB-020/028	5.52	7.69	7.76	4.38	0.233
PCB-021/033	1.96	2.7	2.7	1.51	0.051
PCB-022	1.39	1.98	1.91	1.15	0.0591
PCB-023	0.00303 J	0.0039 J	0.00455 J	0.00298 J	0.00117 U
PCB-024	0.0658	0.0822 J	0.0682	0.0433	0.00221 J
PCB-025	0.253	0.355	0.338	0.224	0.0384
PCB-026/029	0.935	1.19	1.22	0.706	0.0508
PCB-027	0.383	0.44	0.466	0.285	0.0138
PCB-031	6.41	8.65	8.89	4.95	0.21
PCB-032	1.93	2.31	2.42	1.41	0.0647
PCB-034	0.0211	0.0281	0.0288	0.0174	0.00179 J
PCB-035	0.0609	0.066	0.0655	0.0391	0.00693 J
PCB-036	0.00311 U	0.0045 U	0.00604 U	0.013	0.0027 U
PCB-037	0.561	0.739	0.767	0.415	0.031
PCB-038	0.00718 J	0.00457 U	0.00613 U	0.00337 U	0.00274 U

Table 9
Surface Water Sample Results

Patrick Bayou Station ID	PB066B	PB080	PB080	PB082.1	PB101C
Patrick Bayou Sample ID	PB066-1SWMID-20110808-N	PB080-1SWMID-20110808-D	PB080-1SWMID-20110808-N	PB082-1SWMID-20110808-N	PB101-1SWMID-20110808-N
Temporary Field Sample ID	PB066-1SWMID-20110808-N	PBUC053D-1SWMID-20110808-D	PBUC053D-1SWMID-20110808-N	PBUC053U-1SWMID-20110808-N	PB101-1SWMID-20110808-N
Sample Date	8/8/2011	8/8/2011	8/8/2011	8/8/2011	8/8/2011
Sample Type	N	FD	N	N	N
Chemical					
PCB-039	0.00295 U	0.00427 U	0.00572 U	0.00315 U	0.00255 U
PCB-040/071	2.77	4.2	3.93	2.16	0.102
PCB-041	0.61	0.904	0.804	0.417	0.0209
PCB-042	1.58	2.42	2.26	1.27	0.0646
PCB-043	0.283	0.466	0.408	0.228	0.0108
PCB-044/047/065	6.76	10.4	9.42	5.75	0.701
PCB-045/051	1.71	2.41	2.18	1.5	0.421
PCB-046	0.488	0.628	0.607	0.354	0.0231
PCB-048	1.31	2.05	1.85	1.07	0.0332
PCB-049/069	3.95	6.17	5.86	3.24	0.183
PCB-050/053	1.34	1.85	1.75	0.936	0.0435
PCB-052	7.92	12.2	11.4	6.43	0.341
PCB-054	0.0226	0.0352	0.0287	0.0188 J	0.0016 J
PCB-055	0.0648	0.118	0.102	0.0563 J	0.00441 J
PCB-056	2.18	3.49	3.33	1.79	0.088
PCB-057	0.0176 J	0.0297	0.0274 J	0.0155	0.00208 U
PCB-058	0.0111 J	0.024	0.0248	0.00855 J	0.0021 U
PCB-059/062/075	0.486	0.749	0.652	0.408	0.023 J
PCB-060	1.1	1.8	1.7	0.934	0.0482
PCB-061/070/074/076	8.13	12.7	12.2	6.59	0.321
PCB-063	0.184	0.3	0.274	0.149	0.00906 J
PCB-064	2.95	4.66	4.3	2.37	0.12
PCB-066	4.57	7.22	6.97	3.78	0.195
PCB-067	0.102	0.162	0.149	0.0807	0.00622 J
PCB-068	0.319	0.399	0.363	0.473	0.418
PCB-072	0.0275	0.0445	0.0431 J	0.0242 J	0.002 U
PCB-073	0.071	0.000266 U	0.00088 U	0.00226 U	0.00271 J
PCB-077	0.306	0.447	0.461	0.231	0.018
PCB-078	0.00298 U	0.00602 U	0.00491 U	0.00471 U	0.00217 U
PCB-079	0.00251 U	0.0493 J	0.046 J	0.0211	0.00183 U
PCB-080	0.00269 U	0.00542 U	0.00443 U	0.00424 U	0.00195 U
PCB-081	0.013	0.0215	0.0216 J	0.0129	0.00209 U
PCB-082	0.392	0.624	0.608	0.303	0.0176
PCB-083	0.14	0.234	0.22	0.108	0.0118
PCB-084	0.829	1.28	1.23	0.654	0.0505
PCB-085/116/117	0.59	0.946	0.926	0.468	0.0338
PCB-086/087/097/108/119/125	1.66	2.63	2.6	1.32	0.107
PCB-088/091	0.472	0.726	0.713	0.366	0.0279

Table 9
Surface Water Sample Results

Patrick Bayou Station ID	PB066B	PB080	PB080	PB082.1	PB101C
Patrick Bayou Sample ID	PB066-1SWMID-20110808-N	PB080-1SWMID-20110808-D	PB080-1SWMID-20110808-N	PB082-1SWMID-20110808-N	PB101-1SWMID-20110808-N
Temporary Field Sample ID	PB066-1SWMID-20110808-N	PBUC053D-1SWMID-20110808-D	PBUC053D-1SWMID-20110808-N	PBUC053U-1SWMID-20110808-N	PB101-1SWMID-20110808-N
Sample Date	8/8/2011	8/8/2011	8/8/2011	8/8/2011	8/8/2011
Sample Type	N	FD	N	N	N
Chemical					
PCB-089	0.0801	0.123	0.119	0.0626	0.00383 J
PCB-090/101/113	1.75	2.78	2.75	1.4	0.135
PCB-092	0.325	0.536	0.526	0.266	0.0259
PCB-093/100	0.0424	0.0685	0.0687	0.0333	0.00271 J
PCB-094	0.026	0.0383	0.0385	0.0198	0.0028 U
PCB-095	1.75	2.69	2.6	1.37	0.113
PCB-096	0.0514	0.0812	0.0792	0.0433	0.00265 J
PCB-098/102	0.14	0.219	0.216	0.116	0.00692 J
PCB-099	0.98	1.61	1.61	0.803	0.0661
PCB-103	0.019	0.0264	0.0284	0.0145	0.00239 U
PCB-104	0.00117 J	0.00116 U	0.00208 U	0.0013 U	0.000919 U
PCB-105	0.808	1.28	1.31	0.618	0.0475
PCB-106	0.00251 U	0.00495 U	0.00584 U	0.00318 U	0.00183 U
PCB-107/124	0.0633	0.1	0.109	0.051	0.00513 J
PCB-109	0.121	0.194	0.205	0.105	0.00859 J
PCB-110/115	2.19	3.48	3.47	1.72	0.146
PCB-111	0.00159 U	0.00284 U	0.00307 U	0.00244 U	0.00193 U
PCB-112	0.0149	0.0151	0.00327 U	0.00259 U	0.00205 U
PCB-114	0.0552	0.0816	0.0835	0.0425	0.00335 J
PCB-118	1.39	2.11	2.21	1.08	0.104
PCB-120	0.00344 J	0.00496 J	0.00629 J	0.00236 U	0.00187 U
PCB-121	0.0016 U	0.00286 U	0.0031 U	0.00246 U	0.00195 U
PCB-122	0.033	0.0531	0.0514	0.0253	0.00193 U
PCB-123	0.0394	0.0643	0.0624	0.0295	0.00586 J
PCB-126	0.00663 J	0.00976 J	0.013 J	0.00332 U	0.00196 U
PCB-127	0.00248 U	0.00489 U	0.00577 U	0.00314 U	0.00181 U
PCB-128/166	0.108	0.168	0.176	0.0854	0.0127 U
PCB-129/138/163	0.593	0.94	0.952	0.476	0.0841 U
PCB-130	0.0413	0.0696	0.0662	0.0334	0.00578 U
PCB-131	0.0113	0.0166	0.0198	0.00801 J	0.00174 U
PCB-132	0.211	0.328	0.338	0.164	0.0289 U
PCB-133	0.00711 J	0.0125	0.0123	0.00611 J	0.00157 U
PCB-134	0.0339	0.0555	0.0574	0.0283 J	0.00506 U
PCB-135/151	0.146	0.244	0.246	0.123	0.0237 U
PCB-136	0.0758	0.12	0.124	0.0639	0.0116 U
PCB-137	0.0352	0.0562	0.0568	0.0282	0.00417 U
PCB-139/140	0.0137 J	0.02 J	0.0207 J	0.0107 J	0.00147 U
PCB-141	0.0916	0.151	0.152	0.0745	0.0145 U

Table 9
Surface Water Sample Results

Patrick Bayou Station ID	PB066B	PB080	PB080	PB082.1	PB101C
Patrick Bayou Sample ID	PB066-1SWMID-20110808-N	PB080-1SWMID-20110808-D	PB080-1SWMID-20110808-N	PB082-1SWMID-20110808-N	PB101-1SWMID-20110808-N
Temporary Field Sample ID	PB066-1SWMID-20110808-N	PBUC053D-1SWMID-20110808-D	PBUC053D-1SWMID-20110808-N	PBUC053U-1SWMID-20110808-N	PB101-1SWMID-20110808-N
Sample Date	8/8/2011	8/8/2011	8/8/2011	8/8/2011	8/8/2011
Sample Type	N	FD	N	N	N
Chemical					
PCB-142	0.00166 U	0.00177 U	0.00275 U	0.0023 U	0.00166 U
PCB-143	0.00307 J	0.00379 J	0.00507 J	0.00219 U	0.00158 U
PCB-144	0.0229	0.0382	0.0399	0.0197	0.00404 U
PCB-145	0.000728 U	0.000886 U	0.00114 U	0.00184 U	0.000647 U
PCB-146	0.0695	0.109	0.117	0.0555	0.0124 U
PCB-147/149	0.353	0.57	0.567	0.29	0.0568 U
PCB-148	0.000907 U	0.0011 U	0.00141 U	0.0023 U	0.000806 U
PCB-150	0.000702 U	0.00161 J	0.00193 J	0.00177 U	0.000623 U
PCB-152	0.00172 J	0.00224 J	0.0024 J	0.00176 U	0.000617 U
PCB-153/168	0.367	0.592	0.608	0.292	0.0626 U
PCB-154	0.00588 J	0.0101 J	0.00926 J	0.00492 J	0.00117 J
PCB-155	0.000627 U	0.000945 J	0.000982 U	0.00159 U	0.00076 J
PCB-156/157	0.0709	0.112	0.121	0.0555	0.009 U
PCB-158	0.0614	0.1	0.101	0.0476	0.00833 U
PCB-159	0.00168 U	0.00188 U	0.0025 U	0.00176 U	0.00111 U
PCB-160	0.0012 U	0.00128 U	0.00198 U	0.00166 U	0.0012 U
PCB-161	0.00115 U	0.00122 U	0.00189 U	0.00159 U	0.00115 U
PCB-162	0.0021 J	0.00326 J	0.00362 J	0.00168 U	0.00106 U
PCB-164	0.0387	0.064	0.0616	0.0313	0.00622 U
PCB-165	0.00127 U	0.00135 U	0.00209 U	0.00175 U	0.00127 U
PCB-167	0.0214	0.0346	0.0362	0.0176	0.00315 U
PCB-169	0.00134 U	0.0016 U	0.00202 U	0.00145 U	0.000936 U
PCB-170	0.0743	0.116	0.117	0.0534	0.0128 U
PCB-171/173	0.0229	0.0372	0.0386	0.0189 J	0.005 U
PCB-172	0.0125	0.0231	0.0207	0.00955 J	0.00239 J
PCB-174	0.0672	0.101	0.105	0.0507	0.015 U
PCB-175	0.00307 J	0.00536 J	0.00511 J	0.00276 J	0.000755 U
PCB-176	0.0089 J	0.0151	0.0152	0.00726 J	0.00246 U
PCB-177	0.0401	0.0673	0.0675	0.0313	0.00836 U
PCB-178	0.0146	0.0239	0.0247	0.0126 J	0.0037 U
PCB-179	0.031	0.049	0.0479	0.0239	0.00734 U
PCB-180/193	0.139	0.22	0.232	0.108	0.0309 U
PCB-181	0.00138 U	0.0016 U	0.00233 J	0.00278 U	0.000851 U
PCB-182	0.00118 U	0.00223 U	0.00123 U	0.00197 U	0.000776 U
PCB-183/185	0.0469	0.0734	0.08	0.0372	0.0117 U
PCB-184	0.000847 U	0.00161 U	0.000883 U	0.00142 U	0.000559 U
PCB-186	0.000932 U	0.00177 U	0.000972 U	0.00156 U	0.000615 U
PCB-187	0.0737	0.119	0.132	0.056	0.0189 U

FIGURES

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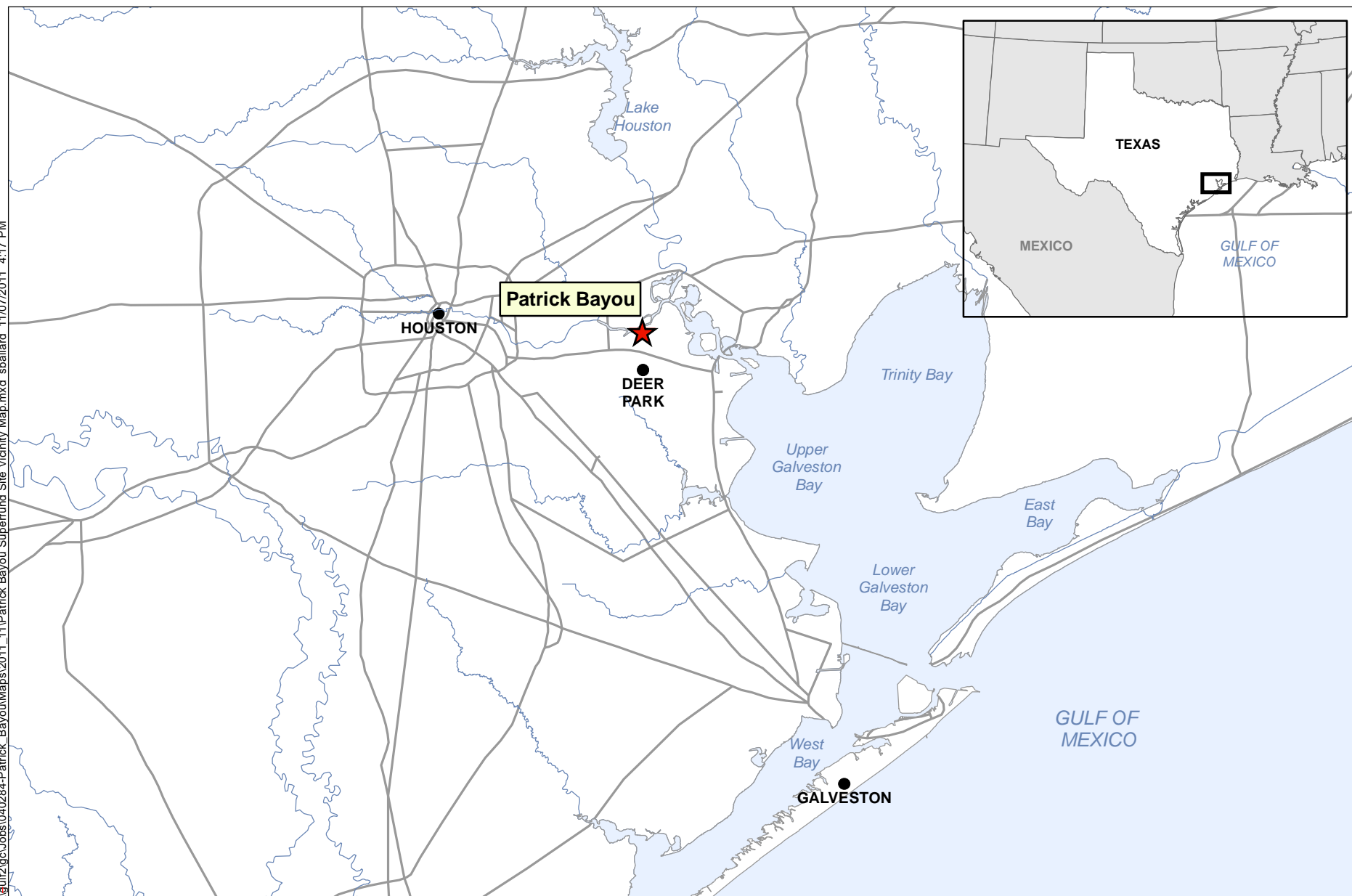


Figure 1
Patrick Bayou Superfund Site Vicinity Map
Upstream Patrick Bayou Characterization Data Report
Patrick Bayou Superfund Site, Deer Park, Texas

Table 9
Surface Water Sample Results

Patrick Bayou Station ID	PB066B	PB080	PB080	PB082.1	PB101C
Patrick Bayou Sample ID	PB066-1SWMID-20110808-N	PB080-1SWMID-20110808-D	PB080-1SWMID-20110808-N	PB082-1SWMID-20110808-N	PB101-1SWMID-20110808-N
Temporary Field Sample ID	PB066-1SWMID-20110808-N	PBUC053D-1SWMID-20110808-D	PBUC053D-1SWMID-20110808-N	PBUC053U-1SWMID-20110808-N	PB101-1SWMID-20110808-N
Sample Date	8/8/2011	8/8/2011	8/8/2011	8/8/2011	8/8/2011
Sample Type	N	FD	N	N	N
Chemical					
PCB-188	0.00105 U	0.00197 U	0.00111 U	0.00165 U	0.000688 U
PCB-189	0.00327 J	0.00513 J	0.00559 J	0.00375 J	0.00116 J
PCB-190	0.0146	0.0227	0.0231	0.0107 J	0.00316 J
PCB-191	0.0031 J	0.00442 J	0.00543 J	0.0023 U	0.000705 U
PCB-192	0.00117 U	0.00136 U	0.00158 U	0.00236 U	0.000722 U
PCB-194	0.0257	0.0382	0.0454	0.0222	0.00657 U
PCB-195	0.00951 J	0.0133 U	0.0189	0.00825 J	0.0028 U
PCB-196	0.0145	0.0225	0.0233	0.0108 J	0.00401 U
PCB-197/200	0.00558 J	0.00933 J	0.00885 J	0.00395 J	0.00163 J
PCB-198/199	0.0328	0.0529	0.0586	0.0258	0.00879 U
PCB-201	0.00441 J	0.00718 J	0.00776 J	0.00351 J	0.00159 U
PCB-202	0.00765 J	0.0128	0.0139	0.00583 J	0.00288 J
PCB-203	0.0154	0.0271	0.0258	0.0114 J	0.00511 U
PCB-204	0.00058 U	0.0011 U	0.0013 U	0.001 U	0.000642 U
PCB-205	0.002 U	0.00908 U	0.00488 U	0.00213 U	0.00116 U
PCB-206	0.0179	0.0431	0.0356	0.0181 J	0.00402 J
PCB-207	0.00855 J	0.0108 J	0.0131	0.00645 J	0.00187 U
PCB-208	0.00926 J	0.0138 J	0.0162 J	0.00662 J	0.00234 J
PCB-209	0.353	1.07	0.965	0.267	0.00943 U
Total PCB Congener (U = 1/2)	100 J	147 J	143 J	79.9 J	5.65 J
Total PCB Congener TEQ 2005 (Mammal) (U = 1/2)	0.000789 J	0.00116 J	0.00150 J	0.000270 J	0.000119 J

Notes:

Bold - Detected result

J - Estimated value

U - Compound analyzed, but not detected above detection limit

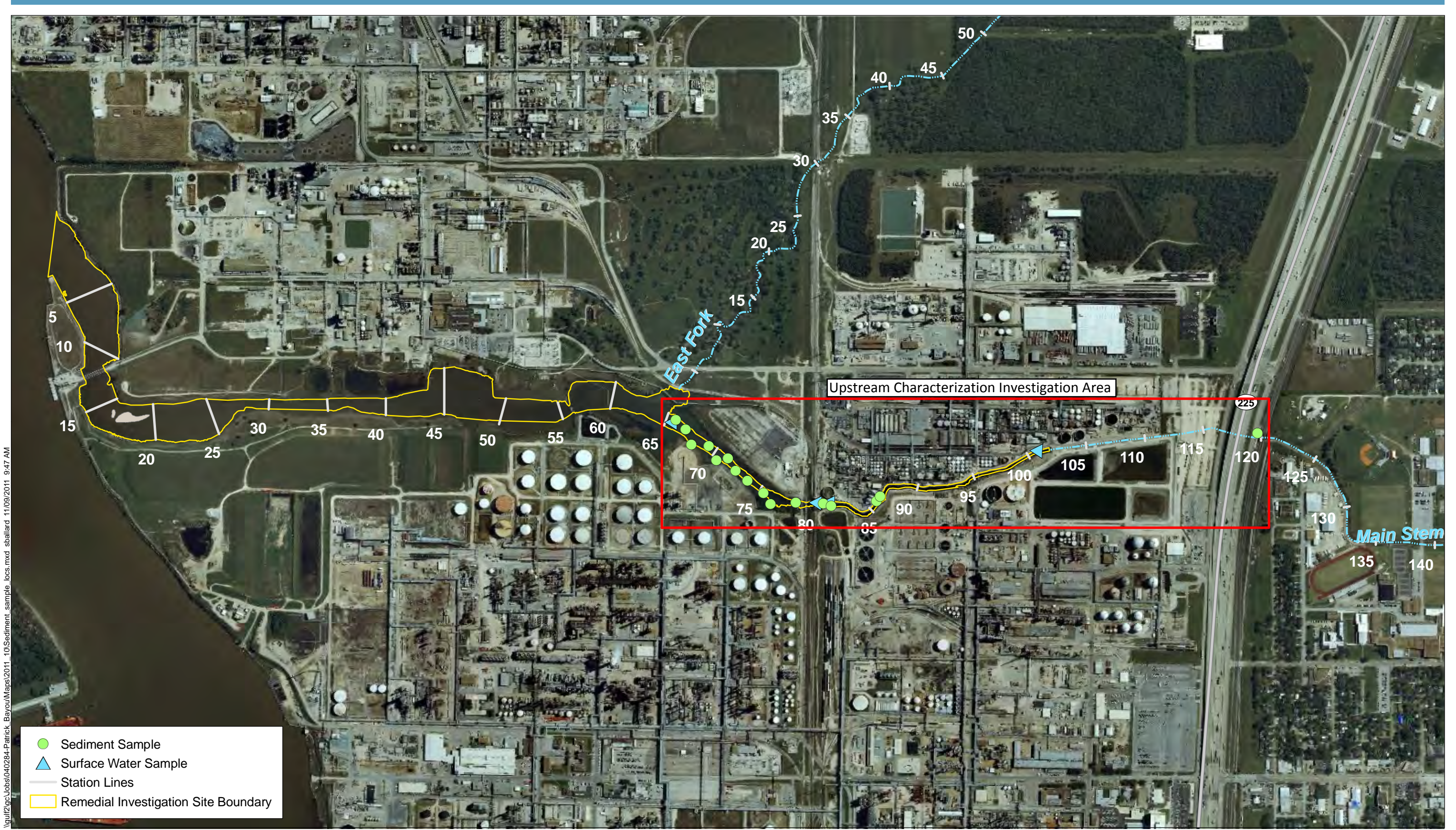
N - Normal Sample

FD - Field Duplicate

mg/l - milligrams per liter

pct - percent

ng/l - nanograms per liter



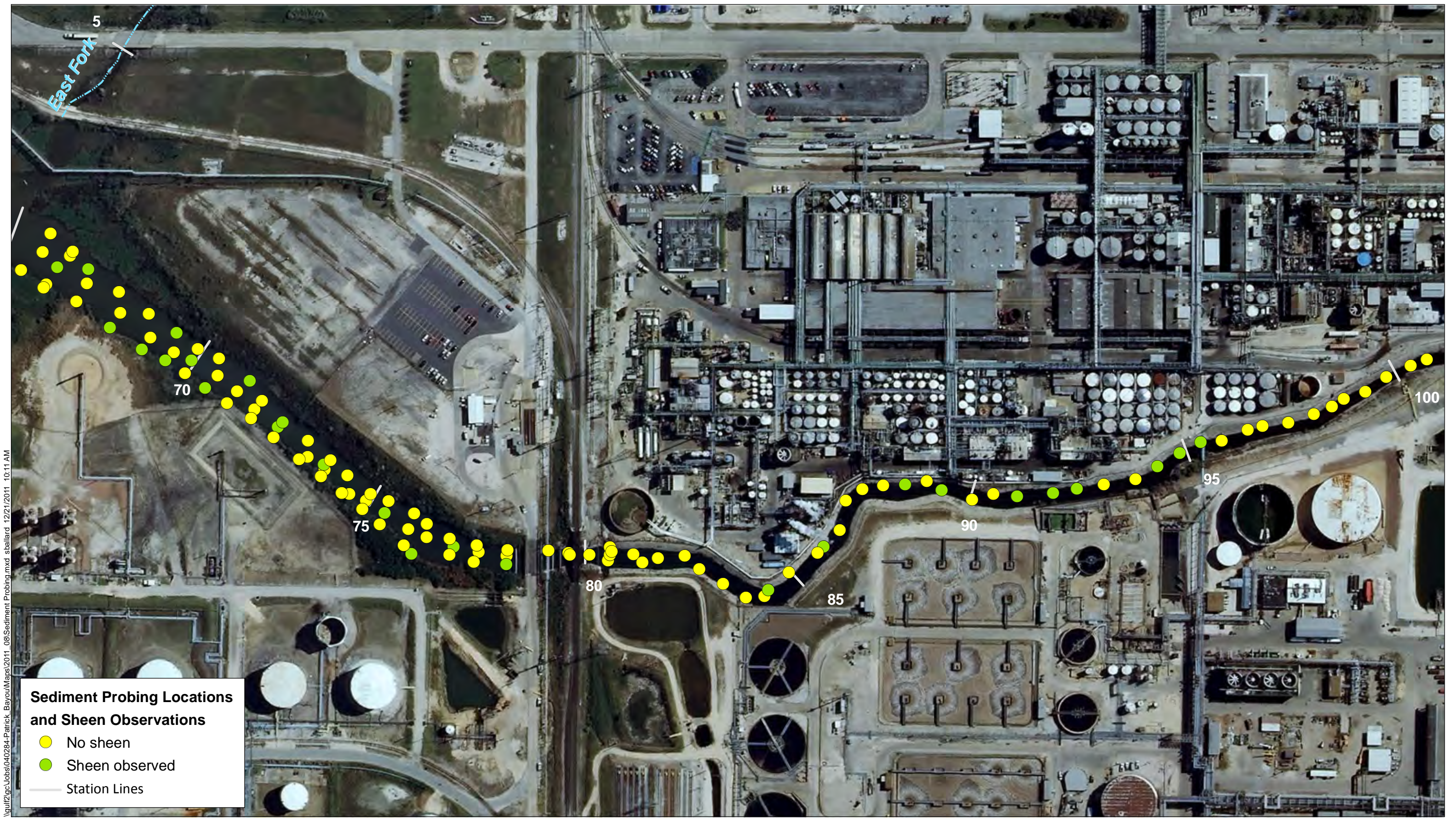
\\gulf2gc\Jobs\040284-Patrick Bayou\Maps\2011_10\Sediment_sample_locs.mxd sballard 11/09/2011 9:47 AM

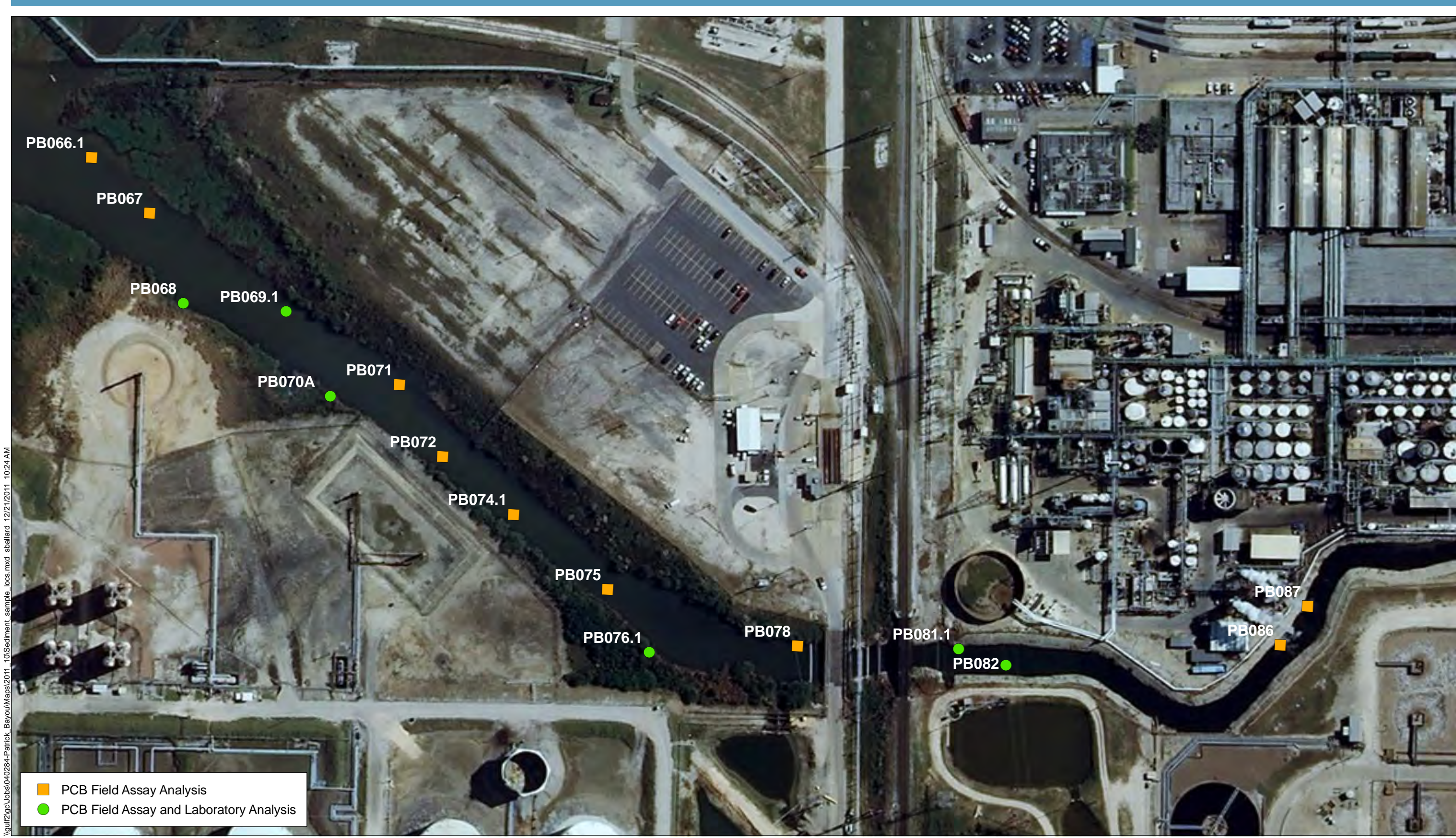


Station numbers indicate length along channel in hundreds of feet.
Aerial orthomimagery: October 2008.

Figure 2
Upstream Characterization Investigation Area
Upstream Patrick Bayou Characterization Data Report
Patrick Bayou Superfund Site, Deer Park, Texas

\\gulf2gc\Jobs\040284-Patrick Bayou\Maps\2011_08\Sediment Probing.mxd sballard 12/21/2011 10:11 AM





\\gulf2gc\jobs\040284-Patrick Bayou\Maps\2011_10\Sediment_sample_locs.mxd sballard 12/21/2011 10:24 AM



\\gulf2gc\Jobs\040284-Patrick Bayou\Maps\2011_11\Sediment_PAH.mxd sballard 12/21/2011 11:14 AM



\\gulf2gc\Jobs\040284-Patrick Bayou\Maps\2011_08\SV samples.mxd sballard 12/21/2011 9:50 AM



Station numbers indicate length along channel in hundreds of feet.
Aerial orthoimagery: October 2008.

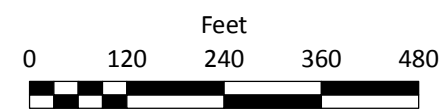


Figure 6
Surface Water Sample Locations and Total PCB Results
Upstream Patrick Bayou Characterization Data Report
Patrick Bayou Superfund Site, Deer Park, Texas

\\gulf2gc\Jobs\040284-Patrick Bayou\Maps\2011_10\Substrate Type.mxd sballard 12/21/2011 10:32 AM



Station numbers indicate length along channel in hundreds of feet.
Aerial orthoimagery: October 2008.

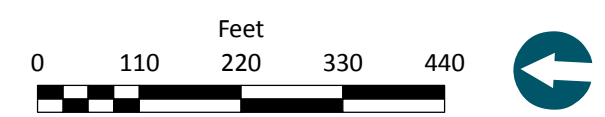
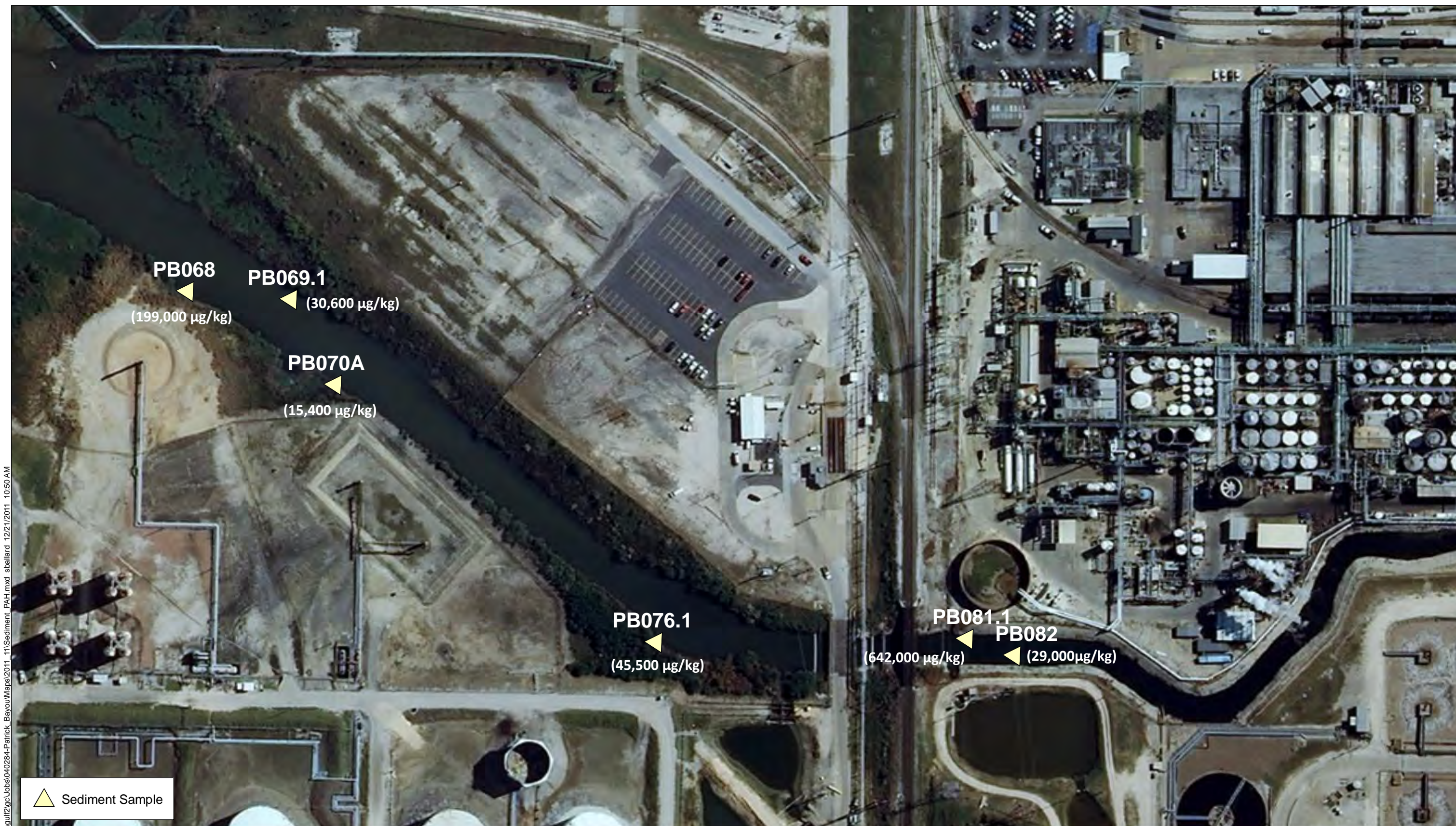


Figure 7
Surface (0 to 10 centimeters) Substrate Type
Upstream Patrick Bayou Characterization Data Report
Patrick Bayou Superfund Site, Deer Park, Texas

\\gulf2gc\jobs\040284-Patrick Bayou\Maps\2011_10\PCB Assay.mxd stallard 12/21/2011 10:40 AM



\\gulf2gc\Jobs\040284-Patrick Bayou\Maps\2011_11\Sediment_PAH.mxd sballard 12/21/2011 10:50 AM



Surface Water

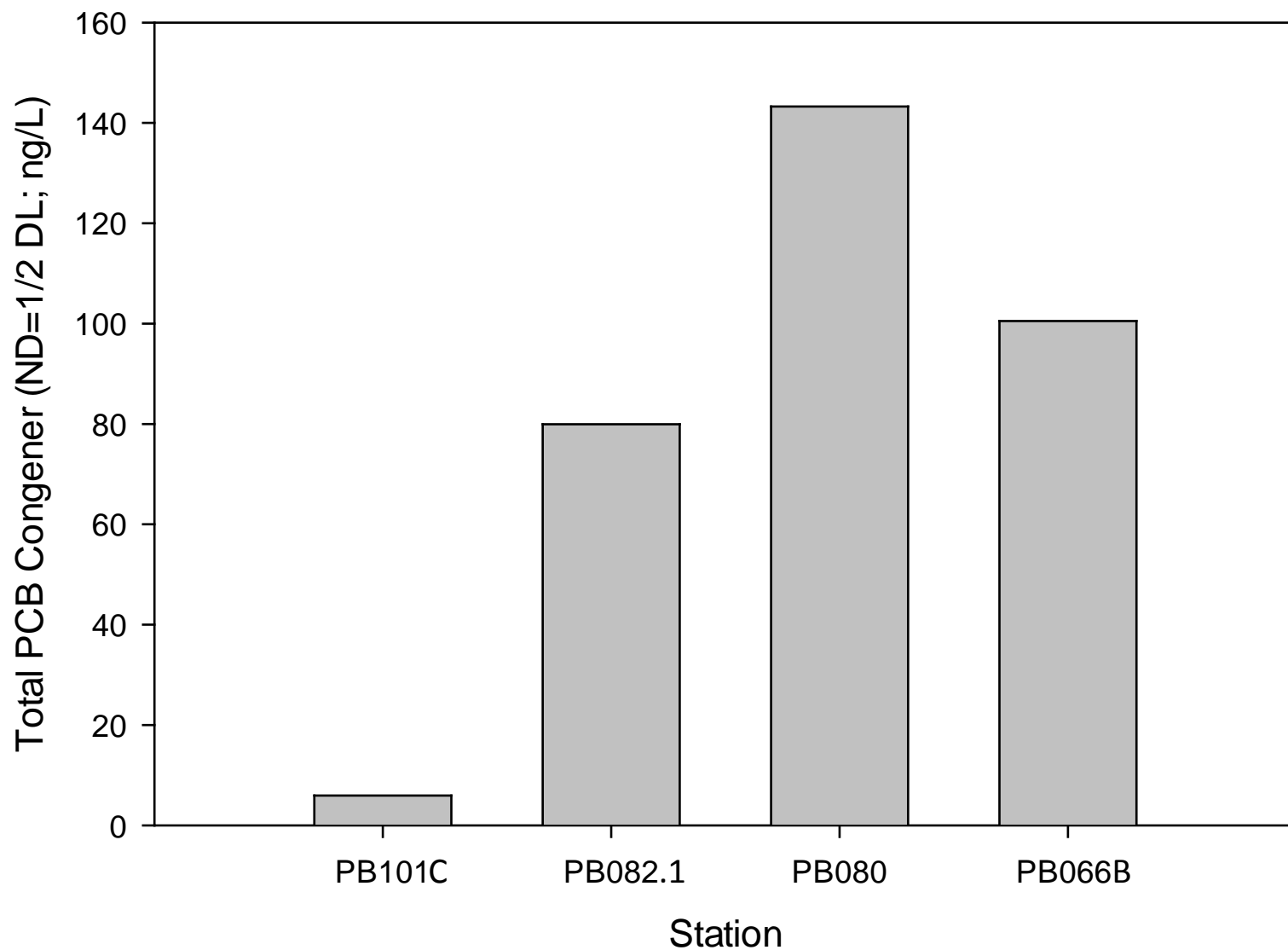


Figure 10

Surface Water Results for Total PCB Congeners
Upstream Patrick Bayou Characterization Data Report
Patrick Bayou Superfund Site, Deer Park, Texas

APPENDIX A
SURFACE SEDIMENT AND SURFACE
WATER FIELD SAMPLE RECORDS



Sediment Probing Form

3:00 - Shell - 6 story building
Right @ stoplight
Service Road -
Service Road -
225 - Right on
access road - 1st
stoplight - turn right into
Shell facility

1 8

Station	Date	Time	Coordinates ^a		Water Depth	Depth of Refusal	Sediment Thickness	Sediment Type ^b	Comments
			Latitude	Longitude	cm (cm) ft	(cm) ft	cm (cm) ft		
001	M	8/2/11			6' 3" 195	0' 16" 10	7" 17.5	Clay	not soft, firm clay
002		8/2/11			5' 11" 183	23	48	clay	med. stiff - sample collected
003		8/2/11			171	129	58	muddy	some sand sheer
004	M	8/2/11			144	179	35	Rocky tip layer	clay underneath
005		8/2/11			52	76	24	Clay	stiff penetration
006		8/2/11			52	73	21	Clay	stiff penetration
007	M	8/2/11			123	137	14	Clay	med. stiff sheer
008		8/2/11			173	189	16	Clay	stiff
009		8/2/11			67	96	29	clay	med. stiff
010	M	8/2/11			65	78	13	clay	med. stiff to stiff
011		8/2/11			55	75	20	clay	med. stiff
012		8/2/11			41	173	132	muddy	sample collected sheer
013		8/2/11			97	187	90	muddy	little sand
014	M	8/2/11			73	90	17	clay	stiff
015		8/2/11			48	68	20	clay w/ sand	stiff
016		8/2/11			175	259	84	soft sediment - 0-26 cm sand - 26 + 58 cm	sample collected; sheer
017		8/2/11			64	80	16	Clay	stiff
018		8/2/11			37	55	18	Clay	stiff

Recorded by: SB

a - Coordinates to be recorded in North American Datum 1983 (NAD 83)

b - Sediment Type - muddy (cohesive) bed, sandy (non-cohesive) bed, rocky bed - based on resistance met by pole, clay

M = mid channel station





Sediment Probing Form

Station	Date	Time	Coordinates ^a		Water Depth (cm)	Depth of Refusal (cm)	Sediment Thickness (cm)	Sediment Type ^b	Comments
			Latitude	Longitude					
019 M	8/2/11	1145			246	296	50	sandy - 0 to 30 cm	Clay 30 to 50 cm
020	8/2/11	1149			73	93	20	Clay	stiff
021	8/2/11	1150			86	113	27	Clay	stiff
022 M	8/2/11	1154			219	227	8	Clay w/ gravel	Hard penetration
023	8/2/11	1155			86	102	16	Clay	stiff
024	8/2/11	1156			54	67	13	Clay	med. stiff
025 M	8/2/11	1157			190	263	73	sandy	w/ gravel
026 M	8/2/11	1159			190	245	55	sandy	sample collected, sheen
027	8/2/11	1340			158	178	20	Clay	med. stiff to stiff
028	8/2/11	1342			49	66	17	Clay	med. stiff to stiff
029 M	8/2/11	1344			185	302	117	Sandy	w/ gravel
030	8/2/11	1347			161	180	19	Clay	stiff - med. stiff
031	8/2/11	1348			42	65	23	Clay	med. stiff
032 M	8/2/11	1350			157	207	50	muddy Sandy	soft, with gravel - sample collected, sheen
033	8/2/11	1402			80	91	11	Clay	med. stiff to stiff
034	8/2/11	1405			145	163	18	clay w/ sand	med. stiff to stiff
035 M	8/2/11	1406			160	252	92	sandy	soft w/ gravel
036	8/2/11	1409			45	76	31	Clay	med. stiff

Recorded by: SB

a - Coordinates to be recorded in North American Datum 1983 (NAD 83)

b - Sediment Type - muddy (cohesive) bed, sandy (non-cohesive) bed, rocky bed - based on resistance met by pole





Sediment Probing Form

Station	Date	Time	Coordinates ^a		Water Depth (cm)	Depth of Refusal (cm)	Sediment Thickness (cm)	Sediment Type ^b	Comments
			Latitude	Longitude					
037	8/2/11	1412			56	110	54	sandy	soft w/ gravel
038 M	8/2/11	1414			96	116	20	Clay	stiff
039	8/2/11	1416			59	85	26	muddy	sample collected; sheer
040	8/2/11	1432			100	126	26	Clay	med. stiff
041 M	8/2/11	1435			91	104	13	clay	stiff clay
042	8/2/11	1437			96	357	261	muddy	sample collected; sheer
043	8/2/11	1450			74	98	24	clay	soft to med. stiff
044 M	8/2/11	1455			180	280	100	muddy/sandy	soft w/ gravel; sheer
045	8/2/11	1457			73	110	37	clay	med. stiff
046	8/2/11	1500			76	89	13	clay	med. stiff
047 M	8/3/11	925			168	213	45	Rocky/sandy	
048 M	8/3/11	929			106 88m	166	60	Top-rocky, muddy, sandy below	
049 M	8/3/11	950			176	226	50	Gravel top, Clay below with sand	
050 M	8/3/11	1005			83	146	63	Sandy clay	
051 M	8/3/11	1007			116	189	75	Rocky top clay	below-med. stiff
052	8/3/11	1022			123	139	16	clay	stiff
053	8/3/11	1036			140	169	29	Gravel top, muddy	below sample collected
054	8/3/11	1049			148	284	136	Rocky top, sandy	silt below

Recorded by:

SB

a - Coordinates to be recorded in North American Datum 1983 (NAD 83)

b - Sediment Type - muddy (cohesive) bed, sandy (non-cohesive) bed, rocky bed - based on resistance met by pole



Sediment Probing Form

Station	Date	Time	Coordinates ^a		Water Depth (cm)	Depth of Refusal (cm)	Sediment Thickness (cm)	Sediment Type ^b	Comments
			Latitude	Longitude					
055	8/3/11	1105			106	150	44	Sandy	sample collected
056	8/3/11	1131			239	317	58	Clay	med stiff
057	8/3/11	1136			155	207	52	Rocky Top, Clay	below
058	8/3/11	1341 ^{SB}			148	237	89	Clay	med. stiff
059	8/3/11	1341			178	199	21	Rocky top, sandy	below
060	8/3/11	1347			235 ^{SB}	235 ^{SB}	13	Clay	stiff
061	8/3/11	1412 ^{SB}			154	195	41	Clay	med. stiff
062	8/3/11	1412			112	170	58	Rocky top, sandy	clay below sheer
063	8/3/11	1417			110	133	20	Clay	stiff
064	8/3/11	1420			145	184	39	Sandy	
065	8/3/11	1434			145	211	16	Rocky (sandy)	mud below sand sheer
066	8/3/11	1535			111	158	47	Clay/sandy	med. stiff
067	8/3/11	1550			209	220	11	Sandy	very hard
068	8/3/11	1555			110	140	30	Clay	med. stiff
069	M 8/4/11	905			99	122	23	Clay	med. stiff - 1cm gravel layer on top
070	8/4/11	909			101	149	48	muddy/clay	some rocks on surface sample collected
071	8/4/11	925			57	166	109	muddy	sheer
072	M 8/4/11	931			86	157	71	muddy/clay	soft - few sand + gravel - sample collected upper surface med. stiff clay

Recorded by: SB

a - Coordinates to be recorded in North American Datum 1983 (NAD 83)

b - Sediment Type - muddy (cohesive) bed, sandy (non-cohesive) bed, rocky bed - based on resistance met by pole



Sediment Probing Form

Station	Date	Time	Coordinates ^a		Water Depth (cm)	Depth of Refusal (cm)	Sediment Thickness (cm)	Sediment Type ^b	Comments
			Latitude	Longitude					
073	8/4/11	940			39	66	27	Clay	med. stiff, sheer
074	8/4/11	942			58	91	33	Clay	med stiff - stiff
075 M	8/4/11	945			88	127	139	Sandy gravel	soft to med. Crust on top
076	8/4/11	947			60	167	107	Muddy	sample collected, sheer
077	8/4/11	1001			42	88	46	Clay	med. stiff
078 M	8/4/11	1005			75	300	225	Sandy/gravelly	soft to medium
079	8/4/11	1009			90	136	46	Clay	soft to medium
080	8/4/11	1011			78	330	252	muddy	sample collected sheer
081 M	8/4/11	1025			88	264	176	muddy w/sand+gravel	soft sheer
082	8/4/11	1029			51	127	36	Clay	soft to med stiff
083	8/4/11	1030			25	61	36	Clay	soft to med. stiff
084	8/4/11	1033			50	116	66	Clay	soft to med. stiff
085	8/4/11	1035			41	136	95	Clay	soft to med. stiff
086 M	8/4/11	1037			67	139	72	Clay	soft to med stiff
087	8/4/11	1045			53	147	94	muddy	soft - sample collected
088	8/4/11	1059			40	272	232	muddy	soft - sample collected
089	8/4/11	1453			140	146	6	Clay/Rocky	med. stiff - surrounded by rocks
090	8/4/11	1407			40	64	24	Gravel	med. dense

Recorded by: JB

a - Coordinates to be recorded in North American Datum 1983 (NAD 83)

b - Sediment Type - muddy (cohesive) bed, sandy (non-cohesive) bed, rocky bed - based on resistance met by pole



Sediment Probing Form

Station	Date	Time	Coordinates ^a		Water Depth (cm)	Depth of Refusal (cm)	Sediment Thickness (cm)	Sediment Type ^b	Comments
			Latitude	Longitude					
091	8/4/11	1410			127	78	11	Gravelly	med. dense + dense
092	8/4/11	1413			52	60	8	Gravelly	very hard
093	8/4/11	1417			55	93	38	Gravelly	med. dense
094	8/4/11	1421			83	144	61	Gravelly	
095	8/4/11	1430			60	120	60	sand/gravel	loose to medium
096	8/4/11	1432			134	158	24	Clay	med. stiff
097	8/4/11	1440			102	123	21	sandy gravel	loose - with clay
098	8/4/11	1444			81	101	20	Rocky/sandy	Loose clayey sand b/n large rocks
099	8/4/11	1446			130	179	49	Rocky/sandy	
100	8/4/11	1454			85	132	47	Sand with gravel	Loose to med. dense sheer
101	8/4/11	1502			102	146	44	Rocky, clay	soft clay b/n large rocks
102	8/4/11	1506			111	150	39	Rocky/gravelly/sand	Loose sheer
103	8/4/11	1506 ¹⁰			116	162	48	Sandy clay & gravel	med. stiff
104	8/4/11	1520			114	122	8	Gravel/sand/clay	med. dense
105	8/4/11	1529			57	59	2	sand/gravel over rocks	Loose. sheer
106	8/4/11	1532			56	91	35	Sand/gravel	Loose - sheer from probing
107	8/4/11	1535			102	122	20	Sand/gravel	Loose to med. dense sheer
108	8/4/11	1540			103	119	14	Sand/gravel	med. dense

Recorded by: SB

a - Coordinates to be recorded in North American Datum 1983 (NAD 83)

b - Sediment Type - muddy (cohesive) bed, sandy (non-cohesive) bed, rocky bed - based on resistance met by pole



Sediment Probing Form

Station	Date	Time	Coordinates ^a		Water Depth (cm)	Depth of Refusal (cm)	Sediment Thickness (cm)	Sediment Type ^b	Comments
			Latitude	Longitude					
109	8/4/11	1410³⁸			67	78	11	Gravelly	med dense to dense
110	8/4/11	1415			52	60	8	Gravelly	very hard
111	8/4/11	1417			55	93	38	Sandy / gravelly	med. dense
112	8/4/11	1421			83	144	61	Sandy / gravelly	
113	8/4/11	1429			57	29	2	sand	
114 109	8/4/11	1545			67	106	39	Sand/gravel/rocks	loose sand b/n rocks
115 110	8/4/11	1550			87	127	40	Clay/sand/gravel	soft, surrounded by large rocks, sheer
116 111	8/4/11	1554			118	146	28	Clay/sand	soft-med. dense
117 112	8/4/11	1605			67	133	46	Clay/gravel/Rock	soft clay b/n rocks, sheer
118 113	8/4/11	1607			120	217	97	Gravel sand over clayey sand	soft to med. dense
119 114	8/4/11	1628			121	156	35	Clayey sand/gravel	med. stiff
120 115									
121 116									
122 117									
123 118									
124 119									
125 120									
126									

Recorded by: _____

a - Coordinates to be recorded in North American Datum 1983 (NAD 83)

b - Sediment Type - muddy (cohesive) bed, sandy (non-cohesive) bed, rocky bed - based on resistance met. by pole



Surface Sediment Field Sample Record

Project Name: Patrick Bayou Project No: Patn 040284-0.04 Station ID: PBUC012

Sampling Crew: <u>JL SB, SW</u>	Sampling Method: <u>Sediment grab</u>
Sample Date: <u>8/2/11</u>	Weather: <u>H+ sunny</u>
Sampling Vessel: <u>BES1</u>	
Subcontractor(s): <u>BS</u>	
Station Coordinates: N / Lat.	
E / Long.	
Datum: NAD 83 / WGS 84	zone:
Sample ID: <u>PBUC012-155010-20110802-N</u>	Other: <u>Archive</u>
Analysis: Metals / TBT / SVOCs / VOCs / PCBs / Pest	Other: <u>AIK, PAH</u>
TS / TVS / Grain Size / TOC / Ammonia / Sulfides	
(Circle Appropriate Analyses)	

Grab Number: <u>1</u>	Water Depth: <u>41 cm</u>	Grab Recovery: <u>12</u> cm	Time: <u>1101</u>		
	Tide Level: _____ ft.	Sample Interval: <u>0-10</u> cm			
Bioassay / Chemistry	Depth MLLW: _____ ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none	<u>H2S</u>	<u>none</u>
gravel	gray	<u>soft/loose</u>	<u>slight</u>	Petroleum	trace
<u>sand</u> C M F	<u>black</u>	mod dense/stiff	moderate	other:	slight
<u>silt</u> clay	brown	dense/stiff	strong		moderate
organic matter	brown surface	very dense/stiff	overwhelming		<u>Wet</u>

Comments: Silty sand

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____		
	Tide Level: _____ ft.	Sample Interval: _____ cm			
Bioassay / Chemistry	Depth MLLW: _____ ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none	H2S	none
gravel	gray	soft/loose	slight	Petroleum	trace
sand C M F	black	mod dense/stiff	moderate	other:	slight
silt clay	brown	dense/stiff	strong		moderate
organic matter	brown surface	very dense/stiff	overwhelming		heavy

Comments:

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____		
	Tide Level: _____ ft.	Sample Interval: _____ cm			
Bioassay / Chemistry	Depth MLLW: _____ ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none	H2S	none
gravel	gray	soft/loose	slight	Petroleum	trace
sand C M F	black	mod dense/stiff	moderate	other:	slight
silt clay	brown	dense/stiff	strong		moderate
organic matter	brown surface	very dense/stiff	overwhelming		heavy

Comments:

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick Bayou Project No: 040284-01.04 Station ID: PBUC042

Sampling Crew: <u>JL, SB, JW</u>	Sampling Method: <u>Eckman</u>
Sample Date: <u>8/2/11</u>	Weather: <u>hot, sunny</u>
Sampling Vessel: <u>BESI</u>	
Subcontractor(s): <u>BS</u>	
Station Coordinates: N / Lat.	
E / Long.	
Datum: NAD 83 / WGS 84	zone:

Sample ID: PBUC042-155010-20110802-N
Analysis: Metals / TBT / SVOCs / VOCs / PCBs / Pest
TS / TVS / Grain Size / TOC / Ammonia / Sulfides
(Circle Appropriate Analyses)Other: Archive
Other: AIK. PAHGrab Number: 1 Water Depth: 96 cm Grab Recovery: 18 cm Time: 1437
Tide Level: _____ ft. Sample Interval: 0-10 cm
Bioassay / Chemistry Depth MLLW: _____ ft.

Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	<u>Very soft/Loose</u>	none H ₂ S	none	Dry
gravel	gray	soft/loose	slight Petroleum	trace	Damp
<u>sand C M F</u>	<u>black</u>	mod dense/stiff	<u>moderate</u> other:	<u>slight</u>	Moist
<u>silt clay</u>	brown	dense/stiff	strong <u>Hydro Carbon</u>	moderate	<u>Wet</u>
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments: Silty clay with some sandGrab Number: _____ Water Depth: _____ ft. Grab Recovery: _____ cm Time: _____
Tide Level: _____ ft. Sample Interval: _____ cm
Bioassay / Chemistry Depth MLLW: _____ ft.

Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none H ₂ S	none	Dry
gravel	gray	soft/loose	slight Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments:

Grab Number: _____ Water Depth: _____ ft. Grab Recovery: _____ cm Time: _____
Tide Level: _____ ft. Sample Interval: _____ cm
Bioassay / Chemistry Depth MLLW: _____ ft.

Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none H ₂ S	none	Dry
gravel	gray	soft/loose	slight Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments:

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick Bayou Project No: 040284-01.04 Station ID: PBUC053

Sampling Crew: <u>SB, SW</u>	Sampling Method: <u>EKman</u>
Sample Date: <u>8/31/11</u>	Weather: <u>Hot, partly cloudy</u>
Sampling Vessel: <u>BESI</u>	
Subcontractor(s): <u>BS</u>	
Station Coordinates: N / Lat.	
E / Long.	
Datum: <u>NAD 83 / WGS 84</u>	zone:
Sample ID: <u>PBUC053-1SS010-20110803-N</u>	Other: <u>Archive 83</u>
Analysis: Metals / TBT / SVOCs / VOCs / PCBs / Pest	Other: <u>AIC. PAH</u>
TS / TVS / Grain Size / TOC / Ammonia / Sulfides	
(Circle Appropriate Analyses)	

Grab Number: <u>1</u>	Water Depth: <u>140</u> ft.	Grab Recovery: <u>10</u> cm	Time: <u>1030</u>			
	Tide Level: _____ ft.	Sample Interval: <u>0-10</u> cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong	Hydrocarbon	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	
Comments: <u>silty clay with large gravel - Duplicate collected</u>						

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments:

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments:

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick Bayou Project No: 040284-01.04 Station ID: PBUC055

Sampling Crew: <u>BS, SB, SW</u>	Sampling Method: <u>EKman</u>
Sample Date: <u>8/3/11</u>	Weather: <u>Hot, sunny</u>
Sampling Vessel: <u>RES1</u>	
Subcontractor(s): <u>BS</u>	
Station Coordinates: N / Lat.	
E / Long.	
Datum: NAD 83 / WGS 84	zone:

Sample ID: PBUC055-155010-20110803-NAnalysis: Metals / TBT / SVOCs / VOCs / PCBs Pest
TS / TVS / Grain Size / TOC / Ammonia / Sulfides
(Circle Appropriate Analyses)Other: PEB AIL. PAH

Other:

Grab Number: <u>1</u>	Water Depth: <u>106 cm</u>	Grab Recovery: <u>11</u> cm	Time: <u>1105</u>
	Tide Level: _____ ft.	Sample Interval: <u>0-10</u> cm	
Bioassay / Chemistry	Depth MLLW: _____ ft.		

Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none	H2S	<u>none</u>
<u>gravel</u>	gray	<u>soft/loose</u>	slight	Petroleum	trace
<u>sand</u> C M F	<u>black</u>	mod dense/stiff	moderate	other:	slight
<u>silt clay</u>	brown	dense/stiff	<u>strong</u>	<u>Hydro</u>	moderate
organic matter	brown surface	very dense/stiff	overwhelming	<u>Carbon</u>	heavy
					<u>Wet</u>

Comments: sandy silt with gravel

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____
	Tide Level: _____ ft.	Sample Interval: _____ cm	
Bioassay / Chemistry	Depth MLLW: _____ ft.		

Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none	H2S	none
gravel	gray	soft/loose	slight	Petroleum	trace
sand C M F	black	mod dense/stiff	moderate	other:	slight
silt clay	brown	dense/stiff	strong		moderate
organic matter	brown surface	very dense/stiff	overwhelming		heavy
					Wet

Comments:

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____
	Tide Level: _____ ft.	Sample Interval: _____ cm	
Bioassay / Chemistry	Depth MLLW: _____ ft.		

Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none	H2S	none
gravel	gray	soft/loose	slight	Petroleum	trace
sand C M F	black	mod dense/stiff	moderate	other:	slight
silt clay	brown	dense/stiff	strong		moderate
organic matter	brown surface	very dense/stiff	overwhelming		heavy
					Wet

Comments:

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick Bayou Project No: 040284-a.04 Station ID: PBUC070

Sampling Crew: <u>SL, SB, SW</u>	Sampling Method: <u>EKman</u>
Sample Date: <u>8/4/11</u>	Weather: <u>Hot, sunny</u>
Sampling Vessel: <u>RES</u>	
Subcontractor(s): <u>BS</u>	
Station Coordinates: N / Lat. _____	
E / Long. _____	
Datum: NAD 83 / WGS 84	zone: _____
Sample ID: <u>PBUC070-155008-20110804-N</u>	Other: <u>Archive SB</u>
Analysis: Metals / TBT / SVOCs / VOCs / <u>PCBs</u> / Pest	Other: <u>AIK-PAH</u>
TS / TVS / Grain Size / TOC / Ammonia / Sulfides	
(Circle Appropriate Analyses)	

Grab Number: <u>1</u>	Water Depth: <u>101 cm</u>	Grab Recovery: <u>8</u> cm	Time: <u>909</u>			
	Tide Level: _____ ft.	Sample Interval: <u>0-8</u> cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	<u>Very soft/Loose</u>	none	H2S	none	Dry
gravel	gray	<u>soft/loose</u>	slight	Petroleum	trace	Damp
<u>sand</u> C M F	<u>black</u>	mod dense/stiff	<u>moderate</u>	other:	<u>slight</u>	Moist
<u>silt clay</u>	brown	dense/stiff	strong	<u>Hydro carbon</u>	moderate	<u>Wet</u>
organic matter	brown surface	very dense/stiff	overwhelming	heavy		

Comments: Silty clay with some sand

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments: _____

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments: _____

Date/Time Lab Drop Off: _____

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick Bayou Project No: 040284-01-04 Station ID: PBUC012-76

Sampling Crew: <u>BS, SB, JH SW</u>	Sampling Method: <u>EKman</u>
Sample Date: <u>8/4/11</u>	
Sampling Vessel: <u>BES</u>	
Subcontractor(s): <u>BS</u>	Weather: <u>Hot sunny</u>
Station Coordinates: N / Lat.	
E / Long.	
Datum: NAD 83 / WGS 84	zone:
Sample ID: <u>PB076-155010-2010804-N</u>	Other: <u>Archive</u>
Analysis: Metals / TBT / SVOCs / VOCs / PCBs / Pest	Other: <u>41K PAH</u>
TS / TVS / Grain Size / TOC / Ammonia / Sulfides	
(Circle Appropriate Analyses)	

Grab Number: <u>1</u>	Water Depth: <u>60cm</u>	Grab Recovery: <u>12</u> cm	Time: <u>947</u>			
	Tide Level: _____ ft.	Sample Interval: <u>0-10</u> cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong	hydrocarbon	moderate	Wet
organic matter	brown surface <1mm	very dense/stiff	overwhelming	heavy		

Comments: silt with trace sand

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments:

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments:

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick BayouProject No: 040284-01.04Station ID: PBUC002

Sampling Crew: <u>JL, SW, SB,</u>	Sampling Method: <u>Sed. grab</u>
Sample Date: <u>8/2/11</u>	Weather: <u>Hot, PC</u>
Sampling Vessel: <u>BESI</u>	
Subcontractor(s): <u>BS</u>	
Station Coordinates: N / Lat. _____	
E / Long. _____	
Datum: NAD 83 / WGS 84	zone: _____
Sample ID: <u>PBUC002-1SS010-20110802-N</u>	Other: <u>Archive</u>
Analysis: Metals / TBT / SVOCs / VOCs / PCBs / Pest	Other: _____
TS / TVS / Grain Size / TOC / Ammonia / Sulfides	
(Circle Appropriate Analyses)	

Grab Number: <u>1</u>	Water Depth: <u>83 cm</u>	Grab Recovery: <u>9</u> cm	Time: <u>1003</u>		
	Tide Level: _____ ft.	Sample Interval: <u>0-10</u> cm			
Bioassay / Chemistry	Depth MLLW: _____ ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	<u>Very soft/Loose</u>	none	H2S <u>none</u>	Dry
gravel	gray	soft/loose	slight	Petroleum trace	Damp
sand C M F	<u>black</u>	mod dense/stiff	<u>moderate</u>	other: slight	Moist
<u>silt clay</u>	brown	dense/stiff	strong	<u>Hydrocarbon</u> moderate	<u>Wet</u>
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments: Lots of leaves + twigs

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____		
	Tide Level: _____ ft.	Sample Interval: _____ cm			
Bioassay / Chemistry	Depth MLLW: _____ ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none	H2S	Dry
gravel	gray	soft/loose	slight	Petroleum	Damp
sand C M F	black	mod dense/stiff	moderate	other: slight	Moist
silt clay	brown	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments:

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____		
	Tide Level: _____ ft.	Sample Interval: _____ cm			
Bioassay / Chemistry	Depth MLLW: _____ ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none	H2S	Dry
gravel	gray	soft/loose	slight	Petroleum	Damp
sand C M F	black	mod dense/stiff	moderate	other: slight	Moist
silt clay	brown	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments:

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick Bayou Project No: 040284-01.04 Station ID: PBUC016

Sampling Crew: <u>JL, SB, SW</u>	Sample Date: <u>8/2/11</u>	Sampling Method: <u>Sed. grab</u>
Sampling Vessel: <u>BES1</u>	Subcontractor(s): <u>BS</u>	Weather: <u>Hot, sunny</u>
Station Coordinates: N / Lat. _____		_____
E / Long. _____		_____
Datum: <u>NAD 83 / WGS 84</u> zone: _____		
Sample ID: <u>PBUC016-1SS010-20110802-N</u>		
Analysis: <u>Metals / TBT / SVOCs / VOCs / PCBs / Pest</u>		Other: <u>Archive</u>
TS / TVS / Grain Size / TOC / Ammonia / Sulfides		Other: _____
(Circle Appropriate Analyses)		

Grab Number: <u>1</u>	Water Depth: <u>175 cm</u>	Grab Recovery: <u>10</u> cm	Time: <u>1127</u>			
	Tide Level: _____ ft.	Sample Interval: <u>0-10</u> cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	<u>Very soft/Loose</u>	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	<u>trace</u>	Damp
sand C M F	<u>black</u>	mod dense/stiff	<u>moderate</u>	other:	slight	Moist
<u>silt clay</u>	brown	dense/stiff	strong	<u>hydro carbon</u>	moderate	<u>Wet</u>
organic matter	brown surface	very dense/stiff	overwhelming	heavy		

Comments: Silty clay with some medium sand. Lots of detritus

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy		

Comments: _____

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy		

Comments: _____

Date/Time Lab Drop Off: _____

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick BayProject No: 040284-01.04Station ID: PBUC026

Sampling Crew: <u>BSW, JL</u>	Sample Date: <u>8/2/11</u>	Sampling Method: <u>sed grab</u>
Sampling Vessel: <u>BES</u>	Subcontractor(s): <u>BS</u>	Weather: <u>hot sunny</u>
Station Coordinates: N / Lat. _____		_____
E / Long. _____		_____
Datum: NAD 83 / WGS 84 zone: _____		
Sample ID: <u>PBUC026-1SS010-26110802-N</u>		
Analysis: Metals / TBT / SVOCs / VOCs / PCBs / Pest		Other: _____
TS / TVS / Grain Size / TOC / Ammonia / Sulfides		Other: _____
(Circle Appropriate Analyses)		

Grab Number: <u>1</u>	Water Depth: <u>190 cm</u>	Grab Recovery: <u>25</u> cm	Time: <u>1159</u>			
	Tide Level: _____ ft.	Sample Interval: <u>010</u> cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	<u>Very soft/Loose</u>	none	<u>H2S</u>	<u>none</u>	Dry
gravel	gray	soft/loose	slight	Petroleum	<u>trace</u>	Damp
<u>sand C M F</u>	<u>black</u>	mod dense/stiff	<u>moderate</u>	other:	slight	Moist
<u>silt clay</u>	brown	dense/stiff	strong	<u>hydro carbon</u>	moderate	<u>Wet</u>
organic matter	brown surface	very dense/stiff	overwhelming	heavy		

Comments: with detritus, some med. sand

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy		

Comments: _____

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy		

Comments: _____

Date/Time Lab Drop Off: _____

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick Bayou Project No: 040284-01.04 Station ID: PBUC032

Sampling Crew: <u>JL, SB, SW</u>	Sampling Method: <u>sediment grab</u>
Sample Date: <u>8/2/11</u>	Weather: <u>Hot, sunny</u>
Sampling Vessel: <u>BES1</u>	
Subcontractor(s): <u>BS</u>	
Station Coordinates: N / Lat. _____	
E / Long. _____	
Datum: <u>NAD 83 / WGS 84</u>	zone: _____

Sample ID: <u>PBUC032-155010-20110802-N</u>	Other: <u>Archive</u>
Analysis: <u>Metals / TBT / SVOCs / VOCs / PCBs / Pest</u>	Other: _____
<u>TS / TVS / Grain Size / TOC / Ammonia / Sulfides</u>	
(Circle Appropriate Analyses)	

Grab Number: <u>1</u>	Water Depth: <u>157 cm</u>	Grab Recovery: <u>17</u> cm	Time: <u>1350</u>			
	Tide Level: _____ ft.	Sample Interval: <u>0-10</u> cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	<u>Wet</u>
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments: _____

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	<u>Very soft/Loose</u>	none	H2S	none	Dry
gravel	gray	soft/loose	<u>slight</u>	Petroleum	trace	Damp
sand C M F	<u>black</u>	mod dense/stiff	moderate	other:	<u>slight</u>	Moist
<u>silt clay</u>	brown	dense/stiff	strong	<u>Hydro carbon</u>	moderate	<u>Wet</u>
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments: Silty clay, some sand, some detritus

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments: _____

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick Bayou Project No: 040284-01.04 Station ID: PBUC039

Sampling Crew: <u>JL, SB, SW</u>	Sampling Method: <u>EKman</u>
Sample Date: <u>8/2/07</u>	Weather: <u>Hot, sunny</u>
Sampling Vessel: <u>BESI</u>	
Subcontractor(s): <u>BS</u>	
Station Coordinates: N / Lat.	
E / Long.	
Datum: NAD 83 / WGS 84	zone:
Sample ID: <u>PBUC039-1SS010-2010802-N</u>	Other: <u>Archive</u>
Analysis: Metals / TBT / SVOCs / VOCs / PCBs / Pest	Other:
TS / TVS / Grain Size / TOC / Ammonia / Sulfides	
(Circle Appropriate Analyses)	

Grab Number: <u>1</u>	Water Depth: <u>59 cm</u>	Grab Recovery: <u>11</u> cm	Time: <u>1416</u>			
	Tide Level: _____ ft.	Sample Interval: <u>0-10</u> cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments: silty clay with some medium sand

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments:

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments:

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name:

Project No:

Station ID: PBUC065

Sampling Crew: <u>SB, SW</u>	Sample Date: <u>8/3/11</u>	Sampling Method: <u>Eckman</u>
Sampling Vessel: <u>BSI</u>	Subcontractor(s): <u>BS</u>	Weather: <u>Hot, Sunny</u>
Station Coordinates: N / Lat.		
E / Long.		
Datum: NAD 83 / WGS 84		zone:
Sample ID: <u>PBUC065 - 155010 - 20110803-N</u>		Other: <u>archive</u>
Analysis: Metals / TBT / SVOCs / VOCs / PCBs / Pest		Other:
TS / TVS / Grain Size / TOC / Ammonia / Sulfides		
(Circle Appropriate Analyses)		

Grab Number: <u>1</u>	Water Depth: _____ ft.	Grab Recovery: <u>10</u> cm	Time: <u>1434</u>			
	Tide Level: _____ ft.	Sample Interval: <u>0-10</u> cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	<u>none</u>	Dry
<u>gravel</u>	gray	soft/loose	slight	Petroleum	trace	Damp
<u>sand</u> C M F	<u>black</u>	<u>mod dense/stiff</u>	moderate	other:	slight	<u>Moist</u>
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	
Comments: <u>Coarse sand with gravel</u>						

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	
Comments:						

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	
Comments:						

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	
Comments:						

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick Bayou

Project No: 040284-01.04

Station ID: PBUC 066

Sampling Crew: <u>SB SW</u>	Sampling Method: <u>EKman</u>
Sample Date: <u>8/2/11</u>	Weather: <u>Hot sunny</u>
Sampling Vessel: <u>BES1</u>	
Subcontractor(s): <u>BS</u>	
Station Coordinates: N / Lat.	
E / Long.	
Datum: NAD 83 / WGS 84	zone:
Sample ID: <u>PBUC 066-1SS010-20110803-N</u>	Other: <u>Archive</u>
Analysis: Metals / TBT / SVOCs / VOCs / PCBs / Pest	Other:
TS / TVS / Grain Size / TOC / Ammonia / Sulfides	
(Circle Appropriate Analyses)	

Grab Number: <u>1</u>	Water Depth: <u>111 cm</u>	Grab Recovery: <u>10</u> cm	Time: <u>1535</u>			
	Tide Level: _____ ft.	Sample Interval: <u>040</u> cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	<u>Very soft/Loose</u>	none	H2S	<u>none</u>	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
<u>sand C M F</u>	<u>black</u>	mod dense/stiff	moderate	other:	slight	Moist
<u>silt clay</u>	brown	dense/stiff	<u>strong</u>	<u>Hydro carbon</u>	moderate	<u>Wet</u>
organic matter	brown surface	very dense/stiff	<u>overwhelming</u>	heavy		
Comments: <u>sand with silt</u>						

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	
Comments:						

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	
Comments:						

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick Bayou Project No: 040284-01.04 Station ID: PBUC080

Sampling Crew: <u>SB, JL, SW</u>	Sampling Method: <u>EKman</u>
Sample Date: <u>8/4/11</u>	
Sampling Vessel: <u>RESI</u>	
Subcontractor(s): <u>BS</u>	Weather: <u>Hot, sunny</u>
Station Coordinates: N / Lat. _____	
E / Long. _____	
Datum: NAD 83 / WGS 84	zone: _____

Sample ID: <u>PBUC080-155010-20110804-N</u>	Other: <u>Archive</u>
Analysis: Metals / TBT / SVOCs / VOCs / PCBs / Pest	Other: _____
TS / TVS / Grain Size / TOC / Ammonia / Sulfides	
(Circle Appropriate Analyses)	

Grab Number: <u>1</u>	Water Depth: <u>78 cm</u>	Grab Recovery: <u>15</u> cm	Time: <u>1044</u>			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	<u>H₂S</u>	<u>none</u>	Dry
gravel	gray	soft/loose	<u>slight</u>	Petroleum	trace	Damp
<u>sand</u> C M F	<u>black</u>	mod dense/stiff	moderate	other:	slight	Moist
<u>silt clay</u>	brown	dense/stiff	strong	<u>hydro carbon</u>	moderate	<u>Wet</u>
organic matter	brown surface <u>< 1mm</u>	very dense/stiff	overwhelming	heavy		

Comments: silty with some sand

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H ₂ S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments: _____

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H ₂ S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments: _____

Date/Time Lab Drop Off: _____

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patuxent Bay Project No: 040284-01.04 Station ID: PBUC088

Sampling Crew: <u>SB, JL, SW</u>	Sample Date: <u>8/4/11</u>	Sampling Method: <u>Ekman</u>
Sampling Vessel: <u>BESI</u>	Subcontractor(s): <u>BS</u>	Weather: <u>hot sunny</u>
Station Coordinates: N / Lat. _____	E / Long. _____	
Datum: <u>NAD 83 / WGS 84</u>	zone: _____	
Sample ID: <u>PBUC088-155010-20110804-N</u>	Analysis: <u>Metals / TBT / SVOCs / VOCs / PCBs / Pest</u>	Other: <u>Archive</u>
	<u>TS / TVS / Grain Size / TOC / Ammonia / Sulfides</u>	Other: _____
(Circle Appropriate Analyses)		

Grab Number: <u>1</u>	Water Depth: <u>53 cm</u>	Grab Recovery: <u>18</u> cm	Time: <u>1045</u>			
	Tide Level: _____ ft.	Sample Interval: <u>0-10</u> cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	<u>Very soft/Loose</u>	none	<u>H2S</u>	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	<u>black</u>	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	<u>strong</u>	<u>Hydro</u>	moderate	<u>Wet</u>
organic matter	<u>brown surface</u> < 1mm	very dense/stiff	overwhelming	<u>carbon</u>	heavy	
Comments: <u>Silty with some sand</u>						

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	
Comments: _____						

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	
Comments: _____						

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick Bayou Project No: 040284-a.04 Station ID: PBUCCLB

Sampling Crew: <u>JL, SB, SW</u>	Sampling Method: <u>Stainless steel shovel</u>
Sample Date: <u>8/5/11</u>	Weather: <u>Hot, Sunny</u>
Sampling Vessel: <u>BES1</u>	
Subcontractor(s): <u>BS</u>	
Station Coordinates: N / Lat. <u>13826348.66</u>	
E / Long. <u>3201540.45</u>	
Datum: <u>NAD 83 / WGS 84</u>	zone:

Sample ID: <u>PBUCCLB-155010-2010805-A</u>	Other: <u>Sp. gravity</u>
Analysis: <u>Metals / TBT / SVOCs / VOCs / PCBs / Pest</u>	Other: <u>D/P</u>
<u>TS / TVS / Grain Size / TOC / Ammonia / Sulfides</u>	
(Circle Appropriate Analyses)	

Grab Number: <u>1</u>	Water Depth: _____ ft.	Grab Recovery: <u>✓</u> cm	Time: <u>8:00</u>		
	Tide Level: _____ ft.	Sample Interval: <u>0-10</u> cm			
Bioassay / Chemistry	Depth MLLW: _____ ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
<u>cobble</u>	D.O.	<u>Very soft/Loose</u>	<u>none</u> H2S	<u>none</u>	Dry
<u>gravel</u>	gray	soft/loose	slight Petroleum	trace	Damp
<u>sand C M F</u>	<u>black</u>	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	<u>Wet</u>
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments: Distance into culvert - 14' 5"
Sandy gravel with cobble

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____		
	Tide Level: _____ ft.	Sample Interval: _____ cm			
Bioassay / Chemistry	Depth MLLW: _____ ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none H2S	none	Dry
gravel	gray	soft/loose	slight Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments:

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____		
	Tide Level: _____ ft.	Sample Interval: _____ cm			
Bioassay / Chemistry	Depth MLLW: _____ ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none H2S	none	Dry
gravel	gray	soft/loose	slight Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments:

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick Bayou Project No: 040284-01.04 Station ID: PBUCCLC

Sampling Crew: <u>SB, JLSW</u>	Sampling Method: <u>stainless steel</u>
Sample Date: <u>8/5/11</u>	<u>Shore</u>
Sampling Vessel: <u>BESI</u>	Weather: <u>Hot sunny</u>
Subcontractor(s): <u>BS</u>	
Station Coordinates: N / Lat. <u>138246350.5</u>	
E / Long. <u>3201530.99</u>	
Datum: NAD 83 / WGS 84	zone:

Sample ID: <u>PBUCCLC-155010-20110805-1</u>	Other: _____
Analysis: Metals / TBT / SVOCs / VOCs / PCBs / Pest	Other: _____
TS / TVS / Grain Size / TOC / Ammonia / Sulfides	
(Circle Appropriate Analyses)	

Grab Number: <u>1</u>	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: <u>8:08</u>
	Tide Level: _____ ft.	Sample Interval: _____ cm	
Bioassay / Chemistry	Depth MLLW: _____ ft.		

Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
<u>cobble</u>	D.O.	<u>Very soft/Loose</u>	<u>none</u> H2S	<u>none</u>	Dry
<u>gravel</u>	gray	soft/loose	slight Petroleum	trace	Damp
<u>sand C M F</u>	<u>black</u>	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	<u>Wet</u>
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments: 10'5' - Distance from mouth of culvert; Duplicate collected
Gravelly sand with cobble

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____
	Tide Level: _____ ft.	Sample Interval: _____ cm	
Bioassay / Chemistry	Depth MLLW: _____ ft.		

Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none H2S	none	Dry
gravel	gray	soft/loose	slight Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments: _____

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____
	Tide Level: _____ ft.	Sample Interval: _____ cm	
Bioassay / Chemistry	Depth MLLW: _____ ft.		

Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none H2S	none	Dry
gravel	gray	soft/loose	slight Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments: _____

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Padrick Bayou Project No: 040284-01.04 Station ID: PBUCCLD

Sampling Crew: <u>SB, JL, SW</u>	Sampling Method: <u>stainless steel shovel</u>
Sample Date: <u>8/5/11</u>	Weather: <u>tbl sunny</u>
Sampling Vessel: <u>38</u>	
Subcontractor(s): <u>SB</u>	
Station Coordinates: N / Lat. <u>138 26 351.37</u>	
E / Long. <u>32015 25.09</u>	
Datum: NAD 83 / WGS 84	zone:
Sample ID: <u>PBUCCLD - ISS010-20110805-N</u>	
Analysis: Metals / TBT / SVOCs / VOCs / PCBs / Pest	Other: <u>SG, D/F</u>
TS / TVS / Grain Size / TOC / Ammonia / Sulfides	Other:
(Circle Appropriate Analyses)	

Grab Number: <u>1</u>	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____		
	Tide Level: _____ ft.	Sample Interval: _____ cm			
Bioassay / Chemistry	Depth MLLW: _____ ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
<u>cobble</u>	D.O.	<u>Very soft/Loose</u>	<u>none</u> H2S	<u>none</u>	Dry
<u>gravel</u>	gray	soft/loose	slight Petroleum	trace	Damp
<u>sand C M F</u>	<u>black</u>	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	<u>Wet</u>
organic matter	brown surface	very dense/stiff	overwhelming	heavy	
Comments: <u>12' 4" - Distance from mouth of culvert</u>					
<u>Sandy gravel with cobble</u>					

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____		
	Tide Level: _____ ft.	Sample Interval: _____ cm			
Bioassay / Chemistry	Depth MLLW: _____ ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none H2S	none	Dry
gravel	gray	soft/loose	slight Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	
Comments:					

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____		
	Tide Level: _____ ft.	Sample Interval: _____ cm			
Bioassay / Chemistry	Depth MLLW: _____ ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none H2S	none	Dry
gravel	gray	soft/loose	slight Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	
Comments:					

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick Bayou Project No: 040284-01.04 Station ID: PBUCCLA

Sampling Crew: <u>SB, JL, SW</u>	Sampling Method: <u>stainless steel shore</u>
Sample Date: <u>8/5/11</u>	Weather: <u>Hpt Sunny</u>
Sampling Vessel: <u>—</u>	
Subcontractor(s): <u>SB</u>	
Station Coordinates: N/Lat. <u>13826344.91</u>	
E/Long. <u>3201558.2</u>	
Datum: <u>NAD 83 / WGS 84</u>	zone: <u>—</u>

Sample ID: <u>PBUCCLA - ISC030-2010805-N</u>	Other: <u>D/F</u>
Analysis: <u>Metals / TBT / SVOC / VOCs / PCBs / Pest</u>	Other: <u>SG</u>
<u>TS / TVS / Grain Size / TOC / Ammonia / Sulfides</u>	
(Circle Appropriate Analyses)	

Grab Number: <u>1</u>	Water Depth: <u>—</u> ft.	Grab Recovery: <u>—</u> cm	Time: <u>8:47</u>		
	Tide Level: <u>—</u> ft.	Sample Interval: <u>—</u> cm			
Bioassay / Chemistry	Depth MLLW: <u>—</u> ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
<u>cobble</u>	D.O.	Very soft/Loose	<u>none</u> H2S	<u>none</u>	Dry
<u>gravel</u>	gray	soft/loose	slight Petroleum	trace	Damp
<u>sand C M F</u>	black	<u>mod dense/stiff</u>	moderate other:	slight	<u>Moist</u>
<u>silt clay</u>	<u>brown</u>	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments: 13'5" - Distance from mouth of culvert
clayey sandy gravel with some cobble

Grab Number: <u>—</u>	Water Depth: <u>—</u> ft.	Grab Recovery: <u>—</u> cm	Time: <u>—</u>		
	Tide Level: <u>—</u> ft.	Sample Interval: <u>—</u> cm			
Bioassay / Chemistry	Depth MLLW: <u>—</u> ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none H2S	none	Dry
gravel	gray	soft/loose	slight Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments:

Grab Number: <u>—</u>	Water Depth: <u>—</u> ft.	Grab Recovery: <u>—</u> cm	Time: <u>—</u>		
	Tide Level: <u>—</u> ft.	Sample Interval: <u>—</u> cm			
Bioassay / Chemistry	Depth MLLW: <u>—</u> ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none H2S	none	Dry
gravel	gray	soft/loose	slight Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments:

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Patrick Bayou Project No: 040284-01.04 Station ID: PBucCLA

Sampling Crew: <u>SB, SW, SW</u>	Sample Date: <u>8/5/11</u>	Sampling Method: <u>Stainless steel shovel</u>
Sampling Vessel: _____	Subcontractor(s): <u>BS</u>	Weather: <u>Hot, sunny</u>
Station Coordinates: N / Lat. _____	E / Long. _____	
Datum: NAD 83 / WGS 84	zone: _____	

Sample ID: <u>PBucCLA-15C060-20110805-N</u>	Other: <u>D/F</u>
Analysis: <u>Metals / TBT / SVOCs / VOCs / PCBs / Pest</u>	Other: <u>SG</u>
<u>TS / TVS / Grain Size / TOC / Ammonia / Sulfides</u>	
(Circle Appropriate Analyses)	

Grab Number: <u>1</u>	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: <u>9:02</u>			
	Tide Level: _____ ft.	Sample Interval: <u>30-60</u> cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments: 13'5" - Distance from mouth of culvert
Sandy clay with gravel, soft to med. stiff

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments: _____

Grab Number: _____	Water Depth: _____ ft.	Grab Recovery: _____ cm	Time: _____			
	Tide Level: _____ ft.	Sample Interval: _____ cm				
Bioassay / Chemistry	Depth MLLW: _____ ft.					
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:	
cobble	D.O.	Very soft/Loose	none	H2S	none	Dry
gravel	gray	soft/loose	slight	Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate	other:	slight	Moist
silt clay	brown	dense/stiff	strong		moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming		heavy	

Comments: _____

Date/Time Lab Drop Off:

Recorded by: _____



Surface Sediment Field Sample Record

Project Name: Pedrick BayouProject No: 040284-01.04Station ID: PBUCCLA

Sampling Crew: <u>SB, JL, SW</u>	Sample Date: <u>8/05/11</u>	Sampling Method: <u>stainless steel shovel</u>
Sampling Vessel: <u>—</u>	Subcontractor(s): <u>BS</u>	Weather: <u>hot sunny</u>
Station Coordinates: <u>N / Lat.</u>	<u>E / Long.</u>	
Datum: <u>NAD 83 / WGS 84</u>	zone: <u>—</u>	

Sample ID: PBUCCLA-15C090-20110805-NAnalysis: (Metals / TBT / SVOCs / VOCs / PCBs / Pest
TS / TVS / Grain Size / TOC / Ammonia / Sulfides
(Circle Appropriate Analyses)Other: DIFOther: SG

Grab Number: <u>1</u>	Water Depth: <u>—</u> ft.	Grab Recovery: <u>—</u> cm	Time: <u>9:15</u>		
	Tide Level: <u>—</u> ft.	Sample Interval: <u>60-90</u> cm			
Bioassay / Chemistry	Depth MLLW: <u>—</u> ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	<u>none</u> H2S	<u>none</u>	Dry
gravel	gray	soft/loose	slight Petroleum	trace	Damp
sand C M F	black	<u>mod dense/stiff</u>	moderate other:	slight	<u>Moist</u>
silt clay	<u>brown</u>	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments: 13'5" - Distance from mouth to culvert
Slightly gravelly sandy clay - medium stiff

Grab Number: <u>—</u>	Water Depth: <u>—</u> ft.	Grab Recovery: <u>—</u> cm	Time: <u>—</u>		
	Tide Level: <u>—</u> ft.	Sample Interval: <u>—</u> cm			
Bioassay / Chemistry	Depth MLLW: <u>—</u> ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none H2S	none	Dry
gravel	gray	soft/loose	slight Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments: —

Grab Number: <u>—</u>	Water Depth: <u>—</u> ft.	Grab Recovery: <u>—</u> cm	Time: <u>—</u>		
	Tide Level: <u>—</u> ft.	Sample Interval: <u>—</u> cm			
Bioassay / Chemistry	Depth MLLW: <u>—</u> ft.				
Sediment Type:	Sediment Color:	Density:	Sediment Odor:	Sheen:	Moisture:
cobble	D.O.	Very soft/Loose	none H2S	none	Dry
gravel	gray	soft/loose	slight Petroleum	trace	Damp
sand C M F	black	mod dense/stiff	moderate other:	slight	Moist
silt clay	brown	dense/stiff	strong	moderate	Wet
organic matter	brown surface	very dense/stiff	overwhelming	heavy	

Comments: —Date/Time Lab Drop Off: —Recorded by: —

Water Quality Sample Form



Project Name: Patrick Bayou

Project Number: 040284-01.001

Sampling Crew: SB, SW

Weather: Hot, Sunny

Subcontractor(s): BS, NH

Date: 8/8/11

Station Coordinates: _____

Sampling Method: per. static

Station ID:	<u>PB066</u>
Sample ID:	<u>PB066-1SWMID-2010808-N</u>
Time:	<u>10:25</u>
Water Depth:	<u>2.5'</u>
Sample Depth:	<u>1.25'</u>

Station ID:	<u>PBUC053D</u>
Sample ID:	<u>PBUC053D-1SWMID-2010808-N</u>
Time:	<u>11:30</u>
Water Depth:	<u>5.5'</u>
Sample Depth:	<u>2.75'</u>

Station ID:	<u>PBUC053U</u>
Sample ID:	<u>PBUC053U-1SWMID-2010808-N</u>
Time:	<u>11:50</u>
Water Depth:	<u>3.2'</u>
Sample Depth:	<u>1.6'</u>

Station ID:	<u>PBUC PB101</u>
Sample ID:	<u>PB101-1SWMID-2010808-N</u>
Time:	<u>12:20</u>
Water Depth:	<u>3.2' ft</u>
Sample Depth:	<u>1.6' ft</u>

Comments: PBUC053D- Duplicate collected



CHAIN OF CUSTODY

PAGE 1 OF 1

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information

Client: Anchor QEA
Address: 614 Magnolia Ave.
Ocean Springs, MS 39264
Phone: (228) 818-9626
Fax: (228) 818-9631
Email: sballard@anchorgea.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Patrick Bayou
Project Location: Deer Park, TX
Project #: 040284-01.04
Project Manager: David Keith
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Date Rec'd in Lab:

ALPHA Job #:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEX ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS										TOTAL # BOTTLES		
		Date	Time			Grain Size	TOC	Specific Gravity	Total metals	PAH	ALK PAH	(Please specify below)					Sample Specific Comments	
	PBUCCLB-1SS010-20110805-N	8/5/11	8:00	SE	SEB	X	X	X	X	X	X							4
	PBUCCLC-1SS010-20110805-N		8:08															
	PBUCCLD-1SS010-20110805-N		8:30															
	PBUCCLE-1SS010-20110805-N		8:38															
	PBUCCLA-1SC030-20110805-N		8:47															
	PBUCCLA-1SC060-20110805-N		9:02															
	PBUCCLA-1SC090-20110805-N	✓	9:15	↓	↓	↓	↓	↓	↓	↓	↓							↓
	PBUCCLC-1SS010-20110805-D	8/5/11	8:08	SE	SEB	X	X	X	X	X	X							2

SAMPLE HANDLING

Filtration _____
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Sample Specific Comments

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT
MA MCP or CT RCP?

Container Type
Preservative

P P P A A A

Relinquished By:

Sarah E Ballard

Date/Time

8/5/11 12:25

Received By:

Date/Time

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.



CHAIN OF CUSTODY

PAGE 1 OF 3

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information

Client: Anchor QEA
Address: 614 Magnolia Ave.
Ocean Springs, MS
Phone: (228) 818-9626
Fax: (228) 818-9631
Email: dpeterson@anchoragea.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Patrick Bayou
Project Location: Deer Park, TX
Project #: 040284-01.04
Project Manager: David Keith
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: _____ Time: _____

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)

Date Rec'd in Lab:

ALPHA Job #:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program _____ Criteria _____

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

ANALYSIS										SAMPLE HANDLING		TOTAL # BOTTLES
PCB Aroclor Aik. PAH Archive										Filtration _____ <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)		
										Sample Specific Comments		

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials											
		Date	Time													
	PBUC012-1SS010-2010802-N	8/2/11	1101	SE	SEB	X	X									1
	PBUC042-1SS010-20110802-N	8/2/11	1437													1
	PBUC053-1SS010-20110803-N	8/3/11	1030													1
	PBUC053-1SS010-20110803-D	8/3/11	1030													1
	PBUC055-1SS010-20110803-N	8/3/11	1105													1
	PBUC070-1SS008-20110804-N	8/4/11	909													1
	PBUC076-1SS010-20110804-N	8/4/11	947													1
	PBUC002-1SS010-20110802-N	8/2/11	1003							X						1
	PBUC016-1SS010-20110802-N	8/2/11	1127							X						1
	PBUC026-1SS010-20110802-N	8/2/11	1159							X						1

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT
MA MCP or CT RCP?

Container Type A A A
Preservative A A A

Relinquished By:

Sarah Ballard

Date/Time

8/8/11 1500

Received By:

Date/Time

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

CHAIN OF CUSTODY

PAGE 3 OF 3

Date Rec'd in Lab:

ALPHA Job #:

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information

Client: Anchor QEA
Address: 614 Magnolia Ave.
Ocean Springs, MS 39564
Phone: (228) 818-9626
Fax: (228) 818-9631
Email: dpeterson@anchoragea.com

Project Information

Project Name:	Patrick Bayou
Project Location:	Deer Park TX
Project #:	040284-01.04
Project Manager:	David Keith
ALPHA Quote #:	

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: _____ Time: _____

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria
--------------------	----------

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

<input type="checkbox"/> Yes	<input type="checkbox"/> No	Are MCP Analytical Methods Required?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Are CT RCP (Reasonable Confidence Protocols) Required?

ANALYSIS

TOC
TSC

SAMPLE HANDLING

Filtration _____

☐ Done

☐ Not needed

☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

	TOTAL #	EXTRA TILES
1	1	0
2	1	0
3	1	0
4	1	0
5	1	0
6	1	0
7	1	0
8	1	0
9	1	0
10	1	0
11	1	0
12	1	0
13	1	0
14	1	0
15	1	0
16	1	0
17	1	0
18	1	0
19	1	0
20	1	0
21	1	0
22	1	0
23	1	0
24	1	0
25	1	0
26	1	0
27	1	0
28	1	0
29	1	0
30	1	0
31	1	0
32	1	0
33	1	0
34	1	0
35	1	0
36	1	0
37	1	0
38	1	0
39	1	0
40	1	0
41	1	0
42	1	0
43	1	0
44	1	0
45	1	0
46	1	0
47	1	0
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68	1	0
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70	1	0
71	1	0
72	1	0
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74	1	0
75	1	0
76	1	0
77	1	0
78	1	0
79	1	0
80	1	0
81	1	0
82	1	0
83	1	0
84	1	0
85	1	0
86	1	0
87	1	0
88	1	0
89	1	0
90	1	0
91	1	0
92	1	0
93	1	0
94	1	0
95	1	0
96	1	0
97	1	0
98	1	0
99	1	0
100	1	0

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		

PBU053D-1SWMID-20110808-D	8/8/11	1130	SW	SEB
---------------------------	--------	------	----	-----

K	X
---	---

Sample Specific Comments

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Container Type

V	P
---	---

Preservative

	D	A
--	---	---

Relinquished_By:

Date/Time

Received By:

Date/Time

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide

- Alaska
- Maryland
- New Jersey
- New York
- North Carolina
- Ohio

www.us.sgs.com

101970

1

CLIENT: Anchor QEA

CONTACT: Delaney Peterson

PROJECT: Patrick Bayou

REPORTS TO: Delaney Peterson

PHONE NO: (206) 903-3396

SITE/PWSID#:

FAX NO: ()

QUOTE #:

P.O. NUMBER:

2

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE	Preservatives Used	Analysis Required	REMARKS
	PBUCCLB-1SS010-20110805-N	8/5/11	8:00	SE	2	G	X	X	
	PBUCCLC-1SS010-20110805-N		8:08						
	PBUCCLD-1SS010-20110805-N		8:30						
	PBUCCLE-1SS010-20110805-N		8:38						
	PBUCCLA-1SC030-20110805-N		8:47						
	PBUCCLA-1SC040-20110805-N		9:02						
	PBUCCLA-1SC090-20110805-N		9:15						
	PBUCCLC-1SS010-20110805-D	8/5/11	8:08	SE	2	G	X	X	

3

SGS Reference:

PAGE 1 OF 1

4

5

Collected/Relinquished By: (1)

Relinquished By: (2)

Relinquished By: (3)

Relinquished By: (4)

Date

Date

Date

Date

Time

Time

Time

Time

Received By:

Received By:

Received By:

Received By:

Shipping Carrier:

Shipping Ticket No:

Special Deliverable Requirements:

Special Instructions:

Requested Turnaround Time:

Samples Received Cold? (Circle) YES NO

Temperature °C:

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

☐ RUSH

Date Needed

☒ STD



CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
• Alaska • Maryland
• New Jersey • New York
• North Carolina • Ohio

www.us.sgs.com

101974

1 CLIENT: <u>Anchor QEA</u>					SGS Reference:										PAGE <u>1</u> OF <u>1</u>						
CONTACT: <u>Delaney Peterson</u> PHONE NO.: <u>(206) 903-3396</u>																					
PROJECT: <u>Patrick Bayne</u> SITE/PWSID#:																					
REPORTS TO: <u>Delaney Peterson</u> FAX NO.: <u>(228) 818-9631</u>																					
INVOICE TO: QUOTE #:																					
P.O. NUMBER:																					
2					No CONTAINERS	SAMPLE TYPE C= COMP G= GRAB	Preservatives Used Analysis Required 3											REMARKS			
LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX																	
	PB0606-1SWMID-20110808-N	8/8/11	1025	SW				1	G	X											
	PB101-1SWMID-20110808-N		1220					1	G	X											
	PB1X05311-1SWMID-20110808-N		1150					1	G	X											
	PBVC053D-1SWMID-20110808-N		1130					1	G	X											
	PBVC053D-1SWMID-20110808-N		1130					1	G	X											
5					4																
Collected/Relinquished By: (1) <u>Sarah Ballard</u>		Date <u>8/8/11</u>	Time <u>1500</u>	Received By:		Shipping Carrier:					Samples Received Cold? (Circle) YES NO										
Relinquished By: (2)		Date	Time	Received By:		Shipping Ticket No:					Temperature °C: _____										
Relinquished By: (3)		Date	Time	Received By:		Special Deliverable Requirements:					Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT										
Relinquished By: (4)		Date	Time	Received By:		Special Instructions:															
Requested Turnaround Time: <input type="checkbox"/> RUSH <input checked="" type="checkbox"/> STD										Date Needed											

APPENDIX B

LABORATORY DATA PACKAGES (CD)

APPENDIX C

DATA VALIDATIONS REPORTS (CD)
